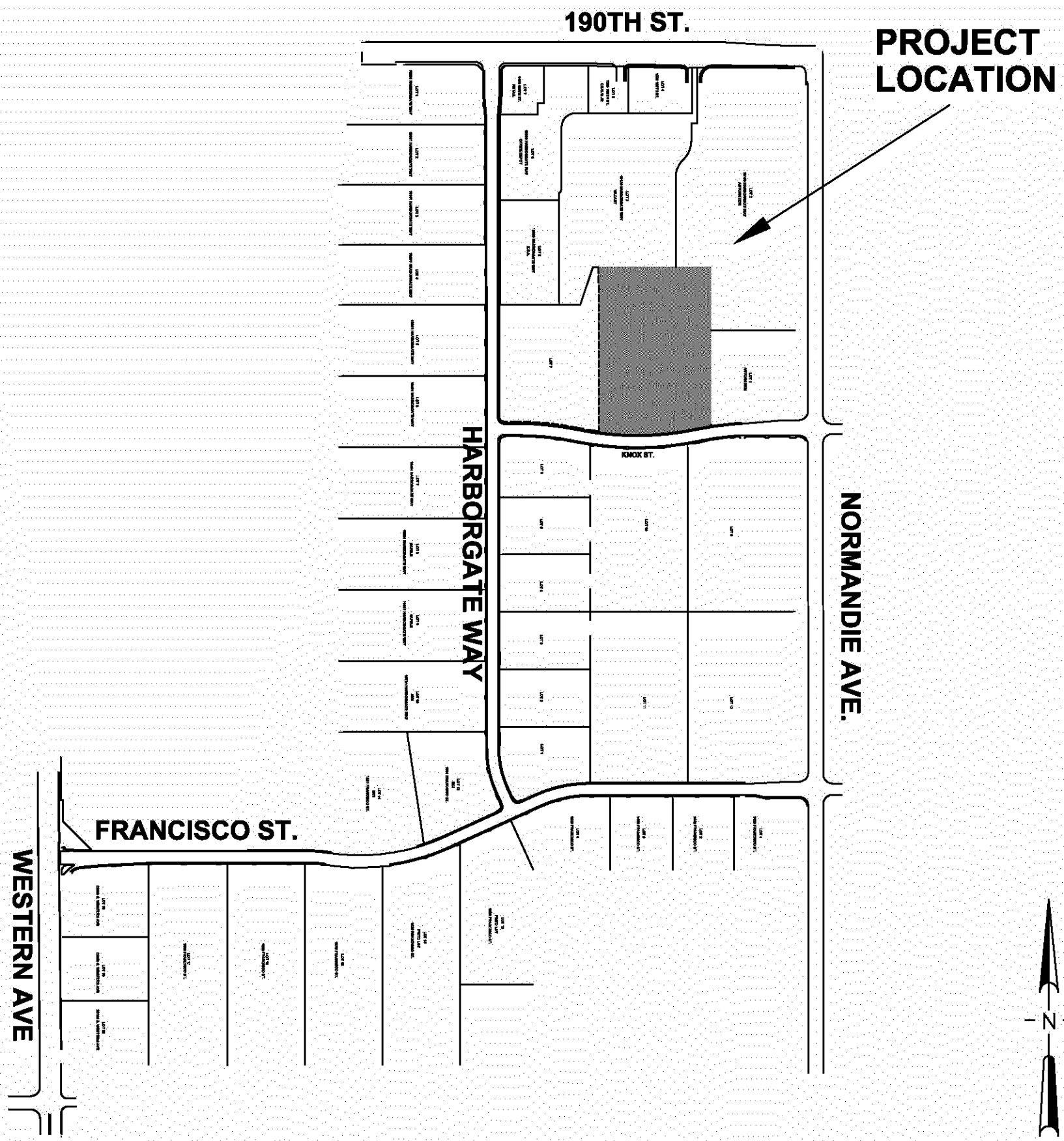
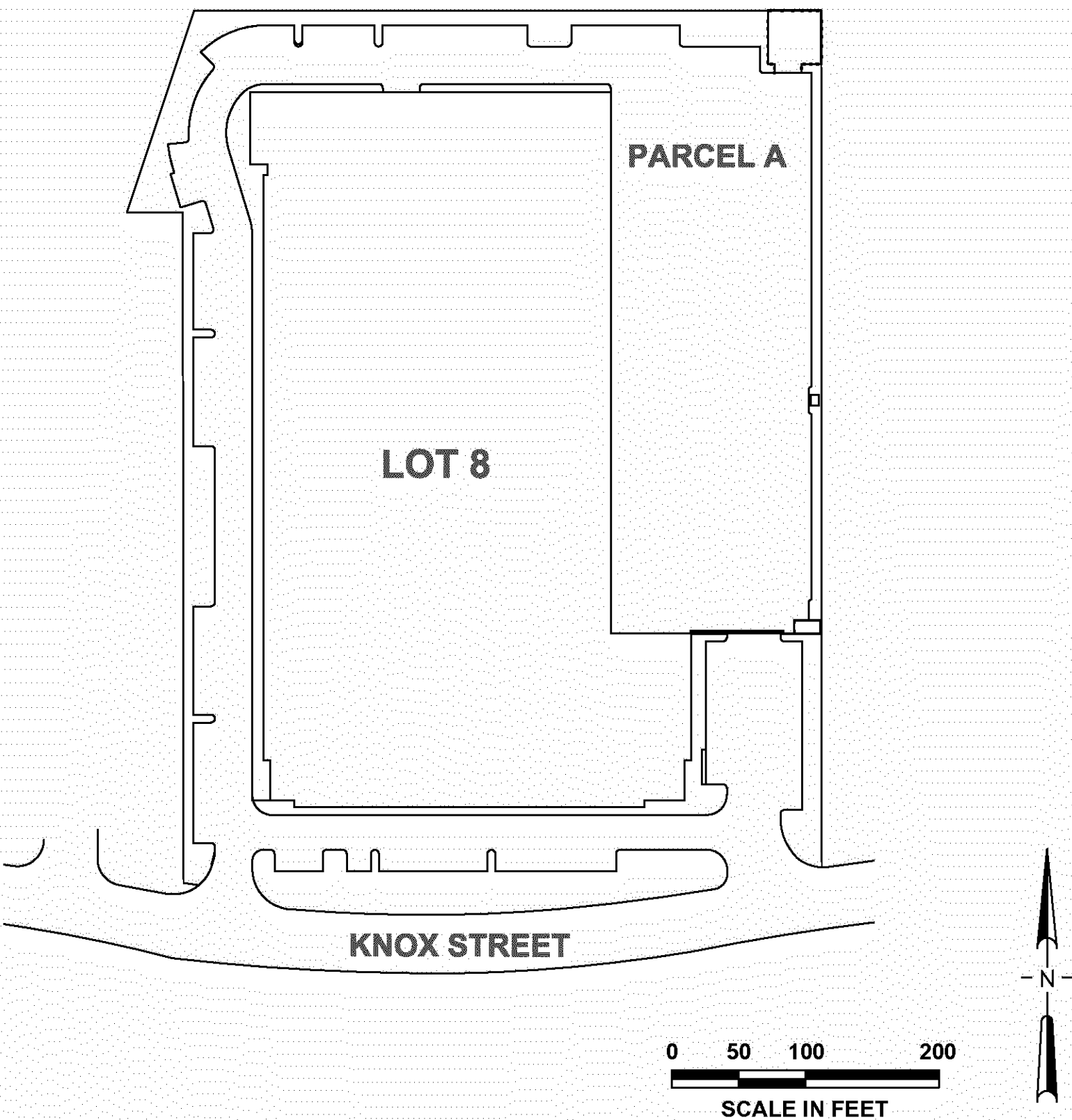


28882D01-AC



PROJECT LOCATION MAP

NOTE: SHEET NUMBERS SHOWN IN GRAY SCALE NOT REVISED OR NOT INCLUDED WITH DISTRIBUTION OF ISSUE NO.5.



LOT 8 MAP

BOEING REALTY CORPORATION

FORMER C-6 FACILITY

LOS ANGELES, CALIFORNIA

LOT 8

BIOREMEDIATION AMENDMENT AND SOIL VAPOR EXTRACTION SYSTEM

PROJECT NO. 28882-540

ISSUE	DATE	REVISIONS	BY
5	7/19/05	UPDATED FINAL WITH ADDITIONAL SUPPLEMENTAL REMEDIATION PIPING	LLD
4	6/23/05	DRAFT UPDATED FINAL	GKM
3	12/22/04	100% FINAL	GKM
2	10/01/04	REVISED 90% DRAFT	GKM
1	9/29/04	90% DRAFT	GKM
0	8/16/04	50% DRAFT	GKM

HALEY & ALDRICH

UNDERGROUND
ENGINEERING &
ENVIRONMENTAL
SOLUTIONS

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BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

COVER SHEET/DRAWING INDEX

Date: OCTOBER 2004 Scale: AS SHOWN File No. 28882D01

Project Engineer: RMF

Designed By: PAK

Drawn By: GKM

Checked By: WCH

Sheet No.: 1 of 13

Drawing No. Issue

G-1 4

28882D02-AC

GENERAL NOTES

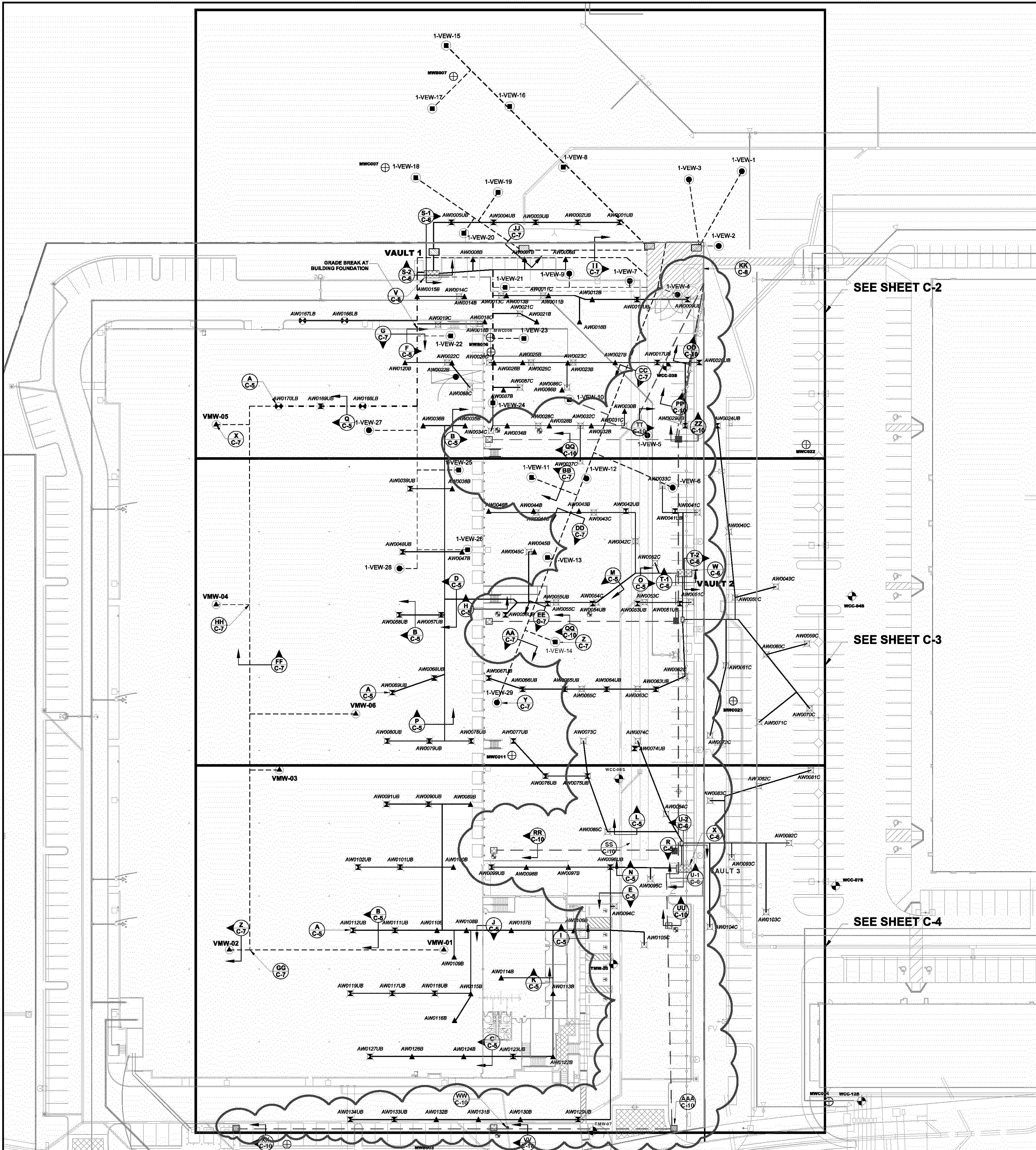
1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES AND REQUIREMENTS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS AND LOCATIONS SHOWN PRIOR TO COMMENCING WORK. ANY CONFLICTS WITH DETAILS AND NOTES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER IN WRITING.
3. DETAILS TAKE PRECEDENCE OVER GENERAL DRAWINGS. WHERE NOTES CONFLICT WITH ANY DRAWING, THE MOST RESTRICTIVE SHALL APPLY. WHERE CONFLICTS EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING IMMEDIATELY. NO CHANGES OR ADDITIONS TO THE SCOPE OF WORK DEPICTED HEREIN SHALL BE MADE WITHOUT PRIOR APPROVAL OF THE ENGINEER.
4. CONTRACTOR SHALL OBTAIN ANY/ALL NECESSARY CONSTRUCTION PERMITS, INCLUDING ELECTRICAL AND PLUMBING PERMITS AND SCHEDULE ANY REQUIRED INSPECTIONS. THE CONTRACTOR SHALL MAINTAIN COPIES OF ANY PERMITS AT THE JOB SITE FOR AGENCY INSPECTION AND PROVIDE A COPY TO THE ENGINEER PRIOR TO BEGINNING WORK.
5. CONTRACTOR SHALL LOCATE ALL UTILITIES AND PROTECT THEM FROM DAMAGE. THE CONTRACTOR SHALL REPAIR AND/OR REPLACE ANY UTILITIES DAMAGED BY THE CONTRACTOR AND PROVIDE FOR SERVICE CONTINUATION DURING REPAIRS AT HIS EXPENSE.
6. UTILITY CROSSINGS AND DEPTHS WITHIN THE PARCEL BOUNDARIES ARE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE UTILITY LOCATIONS AND DEPTHS PRIOR TO CONSTRUCTION.
7. LOCATIONS OF UTILITIES OUTSIDE THE PARCEL BOUNDARY ARE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE TO VERIFY UTILITY LOCATIONS AND DEPTHS PRIOR TO CONSTRUCTION. EXISTING UTILITIES SHALL BE PROTECTED.
8. THE CONTRACTOR SHALL MAINTAIN AN ORDERLY AND CLEAN JOB SITE. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL CONSTRUCTION RELATED TRASH, DEBRIS, AND EXCESS MATERIALS.
9. THE CONTRACTOR'S LAYDOWN AREA FOR MATERIALS SHALL BE COORDINATED WITH THE ENGINEER AND OTHER ON-SITE CONTRACTORS. SECURITY FOR CONTRACTOR'S EQUIPMENT AND MATERIALS IS THE RESPONSIBILITY OF THE CONTRACTOR.
10. THE ELEVATION OF FEATURES (UTILITIES AND FOUNDATIONS) SHALL BE CONFIRMED WITH THE HALEY & ALDRICH FIELD ENGINEER AND SITE CONSTRUCTION MANAGER BEFORE EXCAVATING TRENCHES THAT CROSS FEATURES.
11. ALL OPEN EXCAVATIONS SHALL BE SUPPORTED IN ACCORDANCE WITH APPLICABLE OSHA REQUIREMENTS.
12. INSTALLATION OF HDPE PIPE AND FITTINGS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED PROCEDURES. HDPE PIPE SHALL BE STORED AND HANDLED SO AS NOT TO DAMAGE THE PIPE.
13. HDPE PIPE SHALL BE JOINED BY SOCKET FUSION WELDING IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED PROCEDURES. REQUIREMENTS FOR FUSION TIME, TEMPERATURE, AND PRESSURE SHALL BE FOLLOWED. ALL PIPE JOINTS SHALL ALIGN NATURALLY AND BE STRESS-FREE.
14. PVC PIPE SHALL BE JOINED BY SOLVENT WELDING IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ALL PIPE JOINTS SHALL ALIGN NATURALLY AND BE STRESS FREE.
15. NEW BIOAMENDMENT WELLS WILL BE INSTALLED AND STUBBED OUT ABOVE GROUND SURFACE BY OTHERS. CONTRACTOR IS RESPONSIBLE FOR COMPLETING WELLHEADS AT ELEVATIONS INDICATED ON DRAWINGS.
16. ALL EXISTING SVE WELLS SHALL BE CUT AND CAPPED APPROXIMATELY 4 FEET BELOW GRADE BY THE CONTRACTOR TO FACILITATE SITE GRADING ACTIVITIES . THE CONTRACTOR SHALL VERIFY THIS DEPTH WITH THE HALEY & ALDRICH ENGINEER PRIOR CUTTING AND CAPPING THE WELLS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND RE-EXCAVATING THESE WELLS FOR CONNECTION TO THE PIPING NETWORK.
17. THE CONTRACTOR SHALL BE ENTIRELY RESPONSIBLE FOR ENSURING THAT A UNIFORM, SLOPED BEDDING AND COVER FOR SVE PIPING THAT CONTINUOUSLY SUPPORTS THE PIPE AT A MINIMUM ¼ PERCENT SLOPE IS INSTALLED.
18. ELEVATIONS INDICATED ON DRAWINGS C-1 THROUGH C-4 ARE APPROXIMATE AND MUST BE FIELD VERIFIED PRIOR TO WORK. NO CONTRACT MODIFICATION WILL BE ALLOWED FOR DIFFERENCES BETWEEN FIELD CONDITIONS AND DESIGN ELEVATIONS.
19. ALL HDPE BENDS SHALL BE A MINIMUM OF 3' IN RADIUS.
20. HDPE TO PVC TRANSITION FITTINGS CONNECTIONS SHALL BE ENCASED IN A MINIMUM 1.5 SACK CONCRETE SLURRY TO PREVENT MOVEMENT.
21. ALL UNDERGROUND PVC AND HDPE PIPES SHALL BE SUPPORTED WITH JIGS OR TEMPLATES DURING CONSTRUCTION TO MAINTAIN THE REQUIRED SPACING BETWEEN PIPES AND SVE PIPE SLOPE. JIGS AND TEMPLATES SHALL BE DESIGNED AND PLACED SO THAT THEY DO NOT PINCH THE PIPE OR CONSTRICT THE FLOW OF FLUID WHEN IN USE.
22. ALL ABOVE GROUND PIPING SHALL BE SUPPORTED BY THE GROUND SURFACE AND/OR ATTACHED TO UNISTRUT (OR EQUIVALENT) SUPPORTS. SPACING BETWEEN PIPE SUPPORTS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS TO PREVENT SAGGING.
23. ALL PIPE TERMINATIONS INSIDE VAULTS SHALL BE CORRECTLY LABELED WITH THE ASSOCIATED WELLHEAD IDENTIFICATION LABEL USING STAMPED STAINLESS STEEL TAGS.
24. SECONDARY CONTAINMENT WALLS WITHIN THE SVE COMPOUND SHALL BE CONSTRUCTED OF CMU BLOCKS AND GROUT.
25. THE SLAB AT THE REMEDIATION EQUIPMENT COMPOUND WILL BE DESIGNED AND INSTALLED BY OTHERS.
26. THE NEW KNOCKOUT WATER STORAGE / BIOAMENDMENT TRANSFER TANK SHALL BE A 6,200 GALLON SNYDER VERTICAL STORAGE TANK, PART NUMBER 8220--MT OR EQUIVELANT, WITH STAND. TANK STAND SHALL BE ANCHORED ACCORDING TO STRUCTURAL ENGINEERS RECOMMENDATIONS.
27. SOIL VAPOR EXTRACTION MANIFOLDS SHALL BE CONSTRUCTED ENTIRELY WITHIN THE SVE COMPOUND.
28. HDPE PIPING SHALL BE 1 INCH DIAMETER SDR-11.
29. ALL PVC PIPING, VALVES, AND FITTINGS SHALL BE SCHEDULE 80.

30. ALL PIPING SHALL BE PERMANENTLY LABELED AT EACH END WITH ASSOCIATED WELLHEAD IDENTIFICATION LABEL BEFORE COVERING WITH CONCRETE SLURRY OR SOIL.
31. HDPE AND PVC PIPING SHALL BE INSTALLED, TESTED, AND COVERED WITH CONCRETE SLURRY OR SAND ONE LAYER AT A TIME,IN ACCORDANCE WITH THE LAYOUT AND DETAILS PROVIDED ON SHEETS C-1 THROUGH C-9.
32. OPEN TRENCHES SHALL BE COMPLETELY SURROUNDED BY TEMPORARY SAFETY FENCING AT ALL TIMES WHEN WORK IS NOT BEING DONE IN THE IMMEDIATE AREA. THE SAFETY FENCING SHALL BE MAINTAINED UNTIL THE TRENCH IS BACKFILLED AND COMPACTED TO THE EXISTING GRADE.
33. PRIOR TO BACKFILL, ALL NEW HDPE PIPING SHALL BE HYDROSTATICALLY PRESSURE TESTED AT 150 % OF THE DESIGN SERVICE PRESSURE. IN ACCORDANCE WITH BOEING PROTOCOL, AFTER INITIAL PRESSURIZATION OF THE HDPE PIPE, THE CONTRACTOR SHALL ALLOW A MINIMUM EXPANSION PERIOD OF 20 MINUTES. IF NO LEAKS ARE OBSERVED, THE PIPE WILL BE PRESSURIZED TO THE INITIAL TEST PRESSURE AND THE PIPE PRESSURE TESTED FOR A MINIMUM OF ONE HOUR. A LOSS OF PRESSURE WILL INDICATE A LEAK REQUIRING REPAIR AND RE-TESTING AT THE CONTRACTORS EXPENSE. THE HALEY & ALDRICH ENGINEER MUST WITNESS PRESSURE TESTING.
34. PRIOR TO BACKFILL, ALL NEW HDPE PIPING SHALL BE FLUSHED WITH WATER TO REMOVE ANY GRIT, SAND, AND DEBRIS FROM THE PIPE. FLUSHING SHALL NOT EXCEED THE HDPE DESIGN PRESSURE.
35. PRIOR TO BACKFILL, ALL NEW PVC PIPING SHALL BE TESTED BY APPLYING LOW PRESSURE AIR TO THE PIPING. A WATER/SOAP LIQUID WILL BE APPLIED TO EACH CONNECTION. IF A LEAK IN THE CONNECTION IS OBSERVED, THE LEAK WILL BE REPAIRED AND RE-TESTED AT THE CONTRACTOR'S EXPENSE. THE HALEY & ALDRICH ENGINEER MUST WITNESS TESTING.
36. THE CONTRACTOR SHALL NOT BACKFILL THE TRENCHES UNLESS APPROVAL IS PROVIDED BY THE HALEY & ALDRICH ENGINEER.
37. CONTINUOUS MAGNETIC LOCATOR TAPE SHALL BE INSTALLED IN ALL TRENCHES DURING BACKFILLING FOR IDENTIFICATION PURPOSES.
38. SOIL TRENCH BACKFILL, WHERE INDICATED, SHALL BE MOISTURE CONDITIONED AND COMPACTED TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DRY DENSITY FROM THE GROUND SURFACE TO 12 INCHES BELOW GROUND SURFACE. BACKFILL BELOW 12 INCHES SHALL BE MOISTURE CONDITIONED AND COMPACTED TO A MINIMUM OF 90 PERCENT OF THE MAXIMUM DRY DENSITY. THE CONTRACTOR SHALL BE ENTIRELY RESPONSIBLE FOR ANY DAMAGE TO THE PIPE DURING BEDDING AND BACKFILL PLACEMENT.
39. COMPACTED BACKFILL SHALL BE TESTED IN ACCORDANCE WITH ASTM D1557 TO DOCUMENT MINIMUM COMPACTION REQUIREMENTS ARE MET.
40. CONCRETE SLURRY, WHERE INDICATED, SHALL BE A MINIMUM 2 SACK MIX WHERE TRENCHES CROSS OTHER BELOW GRADE UTILITY LOCATIONS AND BUILDING FOOTINGS. SLURRY MIX AT OTHER LOCATIONS SHALL BE A MINIMUM 1-1/2 SACK MIX.
41. PRIOR TO BACKFILL, ALL PIPE TRENCHES SHALL BE SURVEYED FOR CENTERLINE OF TRENCH AND WELL LOCATIONS. ALL NEW PVC PIPING SHALL BE SURVEYED EVERY 20 LINEAR FEET AND AT PIPE CONNECTIONS, CHANGES IN DIRECTION, AND LOCATIONS WHERE SLOPE CHANGES.
42. ALL SURVEY WORK SHALL BE COMPLETED BY A CALIFORNIA REGISTERED LAND SURVEYOR. THE LAND SURVEYOR SHALL ONLY USE BENCHMARKS ESTABLISHED, OR USED BY, THE LOT 8 CONSTRUCTION / CIVIL ENGINEERING CONTRACTOR.
43. FINAL GROUND SURFACE ELEVATION IN LANDSCAPED AREAS SHALL BE CONFIRMED WITH THE HALEY & ALDRICH FIELD ENGINEER AND SITE CONSTRUCTION MANAGER BFORE EXCAVATING FOR VAULT INSTALLATION.
44. TRAFFIC RATED LIDS SHALL BE PROVIDED FOR BIOAMENDMENT VAULTS LOCATED OUTSIDE LANDSCAPE AREAS. NON-TRAFFIC RATED LIDS SHALL BE PROVIDED FOR ALL OTHER BIOAMENDMENT VAULTS.
45. THE CONTRACTOR SHALL REPLACE IN KIND ALL LANDSCAPE PLANTINGS AND GROUND COVERINGS DISTURBED OR DAMAGED BY THE WORK.
46. THE SEQUENCING OF INSTALLATION OF PIPING THAT CROSSES UTILITIES INSTALLED BY OTHERS SHALL BE COORDINATED WITH THE ENGINEER AND THE DEVELOPER'S CONTRACTOR AT LEAST 30 DAYS IN ADVANCE.
47. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND INTEGRITY OF EXISTING SVE AND GROUNDWATER MONITORING WELLS.
48. THE CONTRCTOR SHALL BE RESPONSIBLE FOR INSTALLING CHAIN LINK FENCE ON THE WEST AND SOUTH SIDES OF THE REMEDIATION EQUIPMENT COMPOUND. THE SVE COMPOUND CHAIN LINK FENCING SHALL INCLUDE PVC PRIVACY SLATS ON ALL SIDES AND GATES. THE COLOR SHALL BE SPECIFIED BY THE DEVELOPER.
49. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD LOCATING AND PROTECTING EXISTING GROUNDWATER MONITORING WELLS. DAMAGE TO THE WELLS BY THE CONTRACTOR SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
50. ALL 1"Ø ELECTRICAL CONDUIT SHALL BE CONSTRUCTED WITH A MINIMUM 6" RADIUS SWEEP AT ALL BENDS.
51. ALL 4"Ø ELECTRICAL CONDUIT SHALL BE CONSTRUCTED WITH A MINIMUM 24" RADIUS SWEEP AT ALL BENDS.
52. THE MUNICIPAL SANITARY SEWER LATERAL SHALL BE CONSTRUCTED OF SCHEDULE 40 PVC AND HAVE 1 CLEANOUT CONSTRUCTED EVERY 100 FEET AND AFTER EVERY 145° IN TOTAL DIRECTION CHANGE. THE ELEVATION WHERE THE PIPE WILL CONNECT TO THE EXISTING BUILDING LATERAL SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
53. ALL SUPPLEMENTARY PIPE TERMINATIONS IN SUB SURFACE STRUCTURES SHALL BE CAPPED WITH SOLVENT WELDED CAPS (PVC) OR HDPE CAPS WITH A MINIMUM BURIAL DEPTH OF 13" BELOW BOTTOM OF PAVEMENT.
54. 4"Ø HDPE LINE WITH SECONDARY CONTAINMENT SHALL HAVE A 4" Ø PRIMARY LINE WITH A MINIMUM 8"Ø SECONDARY PIPE. 2" Ø HDPE LINE WITH SECONDARY CONTAINMENT SHALL HAVE A 2" Ø PRIMARY LINE WITH A MINIMUM 4"Ø SECONDARY PIPE. BOTH PRIMARY AND SECONDARY PIPES SHALL BE INDIVIDUALLY PRESSURE TREATED AS DESCRIBED IN NOTE 33.
55. THE CONSTRUCTION STUB-OUT BOX SHOWN IN DETAIL AAA/C-10 SHALL BE BARRIED A MINIMUM OF 18" BELOW GRADE AND BE ENTIRELY WITHIN THE LANDSCAPE AREA.

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ISSUE	DATE	REVISIONS	BY

<div>HALEY & ALDRICH</div> <div>UNDERGROUND ENGINEERING & ENVIRONMENTAL SOLUTIONS</div> <div>Haley & Aldrich, Inc. 9040 FRIARS ROAD, SUITE 220 SAN DIEGO, CA 92108 Tel: (619) 280-9210 Fax: (619) 280-9415</div>	BOEING REALTY CORPORATION FORMER C-6 FACILITY LOS ANGELES, CALIFORNIA		Project Engineer: RMF	
	GENERAL NOTES		Designed By: PAK	
			Drawn By: GKM	
			Checked By: WCH	
	Date: OCTOBER 2004		Scale:	File No. 28882D02
			Drawing No.	Issue
			G-2	4

(605) 28882D03-Pre_Supp_pipe



LEGEND

- AWD170LB LOWER B-SAND BIOAMENDMENT INJECTION WELL LOCATION
- AWD001UB UPPER B-SAND BIOAMENDMENT INJECTION WELL LOCATION
- AWD001B UPPER/LOWER B-SAND BIOAMENDMENT INJECTION WELL LOCATION
- AWD001C C-SAND BIOAMENDMENT INJECTION WELL LOCATION
- WCC-03S EXISTING GROUNDWATER MONITORING WELL
- MWC011 PROPOSED GROUNDWATER MONITORING WELL BY OTHERS
- 1-VEW-9 SINGLE COMPLETION SOIL VAPOR EXTRACTION WELL LOCATION
- 1-VEW-14 DOUBLE COMPLETION SOIL VAPOR EXTRACTION WELL LOCATION
- VMW-04 VAPOR MITIGATION WELL LOCATION
- PROPOSED FUTURE GROUNDWATER EXTRACTION WELL
- BIOAMENDMENT PIPE TRENCH
- SOIL VAPOR EXTRACTION / VAPOR MITIGATION PIPE TRENCH
- COMBINED REMEDIATION PIPING TRENCH
- PARCEL BOUNDARY
- BOUNDARY OF ADDITIONAL ENLARGED SHEET
- BIOAMENDMENT REMOTE FILL LINE
- UTILITY TRENCH FOR WATER LINE AND ELECTRICAL CONDUIT
- SUPPLEMENTAL PIPE TRENCH (SEE SHEETS C-2, C-3, AND C-4 FOR ROUTES OF SPECIFIC PIPES AND CONDUIT)
- LOCATION OF NEW FLUSH MOUNTED VAULT FOR SUBSURFACE REMEDIATION PIPING
- LOCATION OF NEW FLUSH MOUNTED VAULT FOR ELECTRICAL CONDUIT AND SUPPLEMENTARY REMEDIATION PIPING
- CONSTRUCTION STUB-OUT BOX (BIOAMENDMENT)
- CONSTRUCTION STUB-OUT BOX (SOIL VAPOR EXTRACTION)
- CONSTRUCTION STUB-OUT BOX (SUPPLEMENTAL REMEDIATION PIPING)
- CONSTRUCTION STUB-OUT BOX (FUTURE GROUNDWATER EXTRACTION PIPE AND ELECTRICAL CONDUIT)
- FIRE LINE
- STORMDRAIN
- SWALE
- CATCH BASIN
- FF FINISH FLOOR ELEVATION
- FL FLOW LINE ELEVATION
- FS FINISH SURFACE ELEVATION
- SVE IE INVERT ELEVATION OF DEEPEST SVE PIPE
- TC TOP OF CURB ELEVATION
- TF TOP OF FOOTING
- TW TOP OF WALL
- NUMBER B INDICATES DETAIL
- SHEET C-5

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BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

BIOREMEDIATION AMENDMENT
AND SVE PIPING LAYOUT

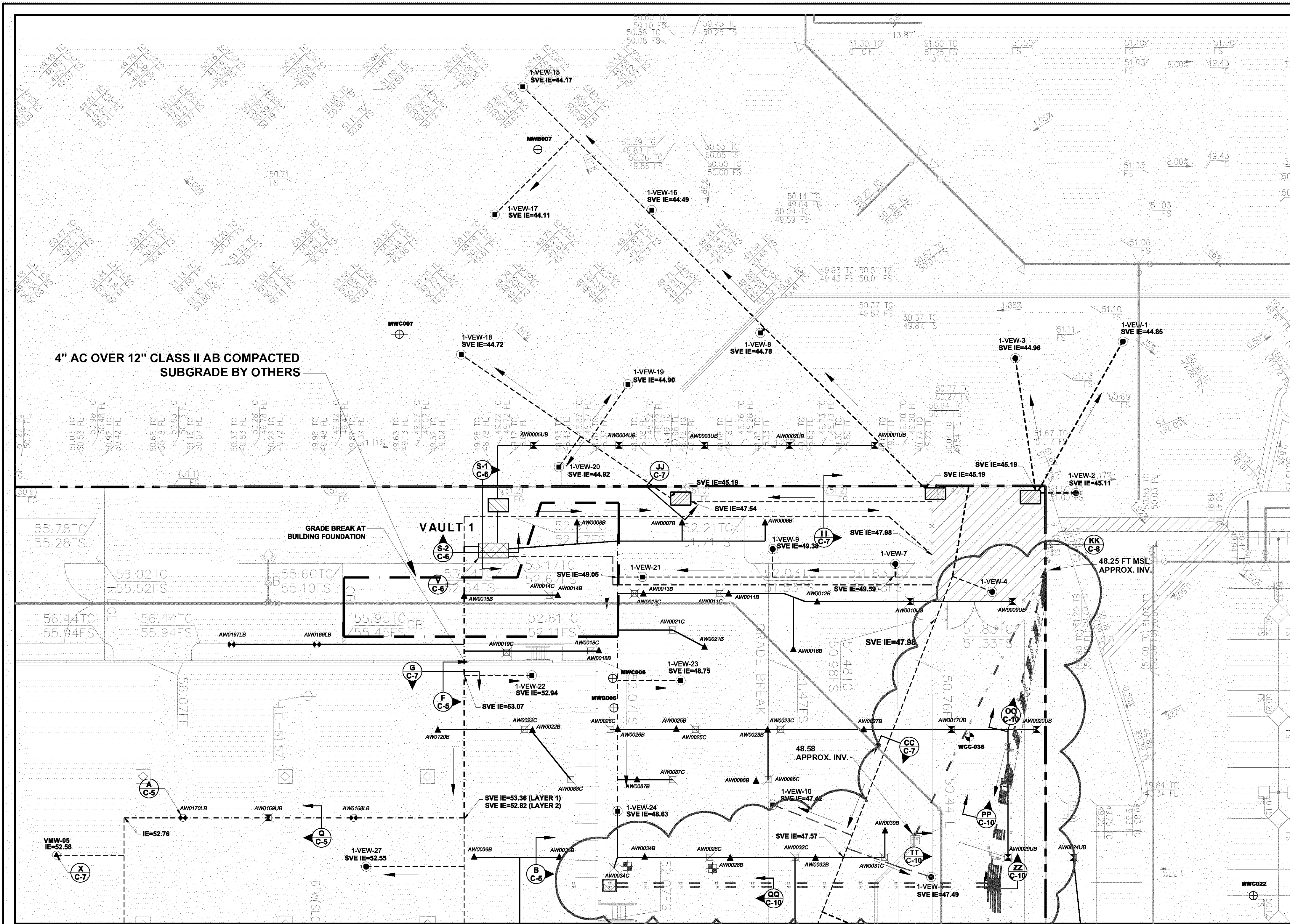
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File No: 28882D03

Project Engineer: RMF
Designed By: PAK
Drawn By: GKM
Checked By: WCH

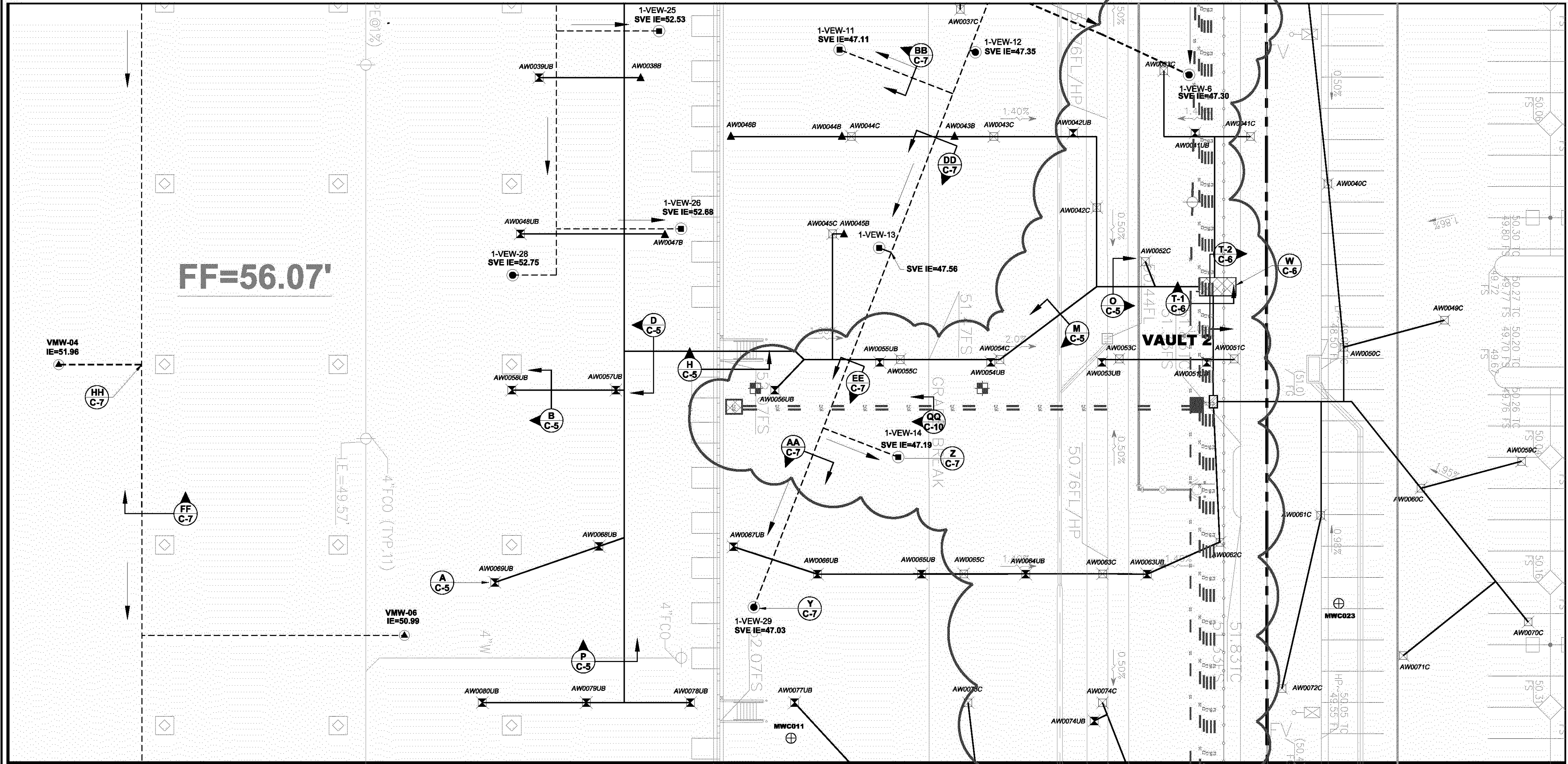
Sheet No.: 3 of 13
Drawing No: C-1
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28882D05-AC



NOTE:
ALL BIOAMENDMENT WELLS SHALL BE COMPLETED A MINIMUM OF 18" BELOW FINISH GRADE. BUILDING SLAB THICKNESS IS 7". EXTERIOR PAVING WITHIN PARCEL BOUNDARY IS 7-INCH PCC OVER NATIVE SOILS UNLESS SPECIFIED. SUBJECT TO CHANGE, FIELD VERIFY PRIOR TO CONSTRUCTION.
PAVEMENT DESIGN OUTSIDE LOT 8 VARIES, CONFIRM DEPTH WITH HALEY & ALDRICH ENGINEER PRIOR TO CONSTRUCTION.

FF	FINISH FLOOR ELEVATION
FL	FLOW LINE ELEVATION
FS	FINISH SURFACE ELEVATION
SS	SANITARY SEWER LATERAL
SVE IE	INVERT ELEVATION OF DEEPEST SVE PIPE
TC	TOP OF CURB ELEVATION
TF	TOP OF FOOTING
TW	TOP OF WALL
NUMBER SHEET B C-5	INDICATES DETAIL

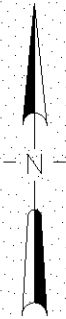
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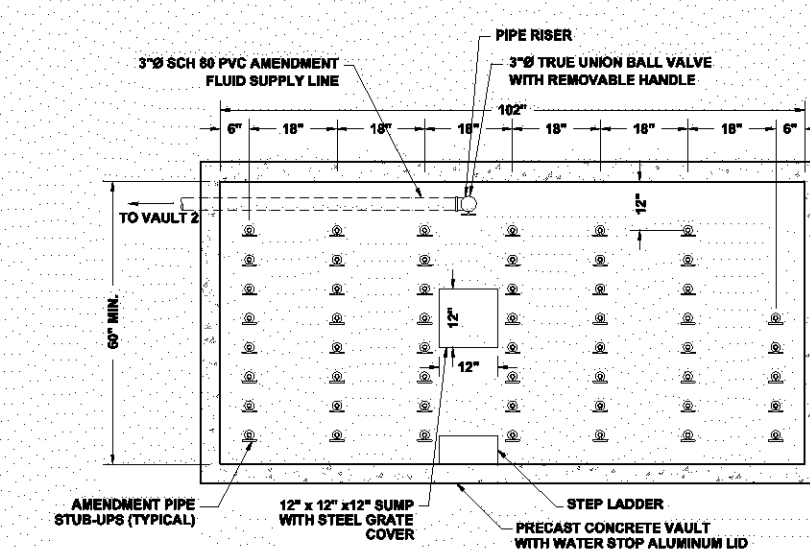
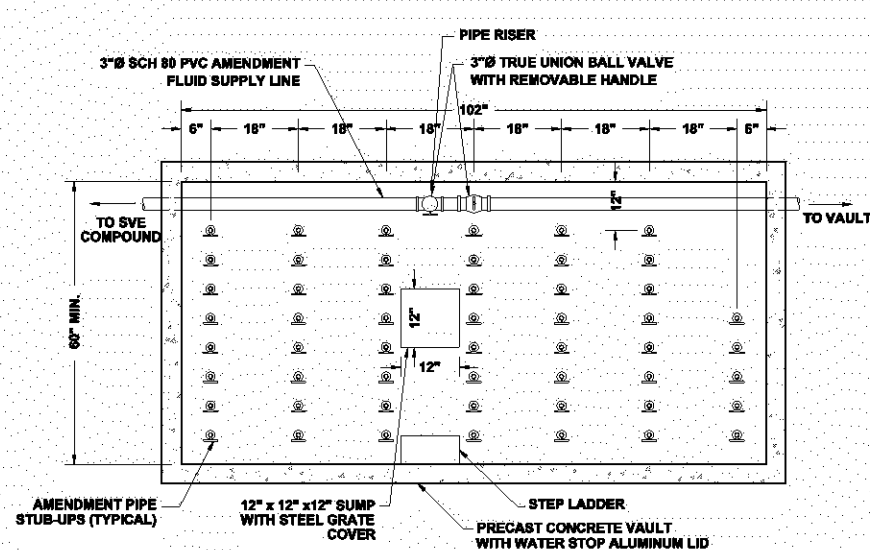
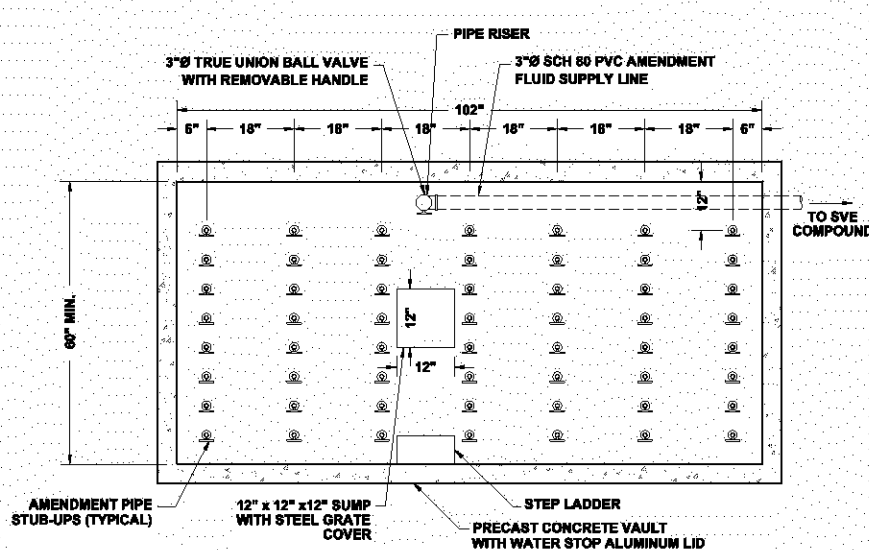
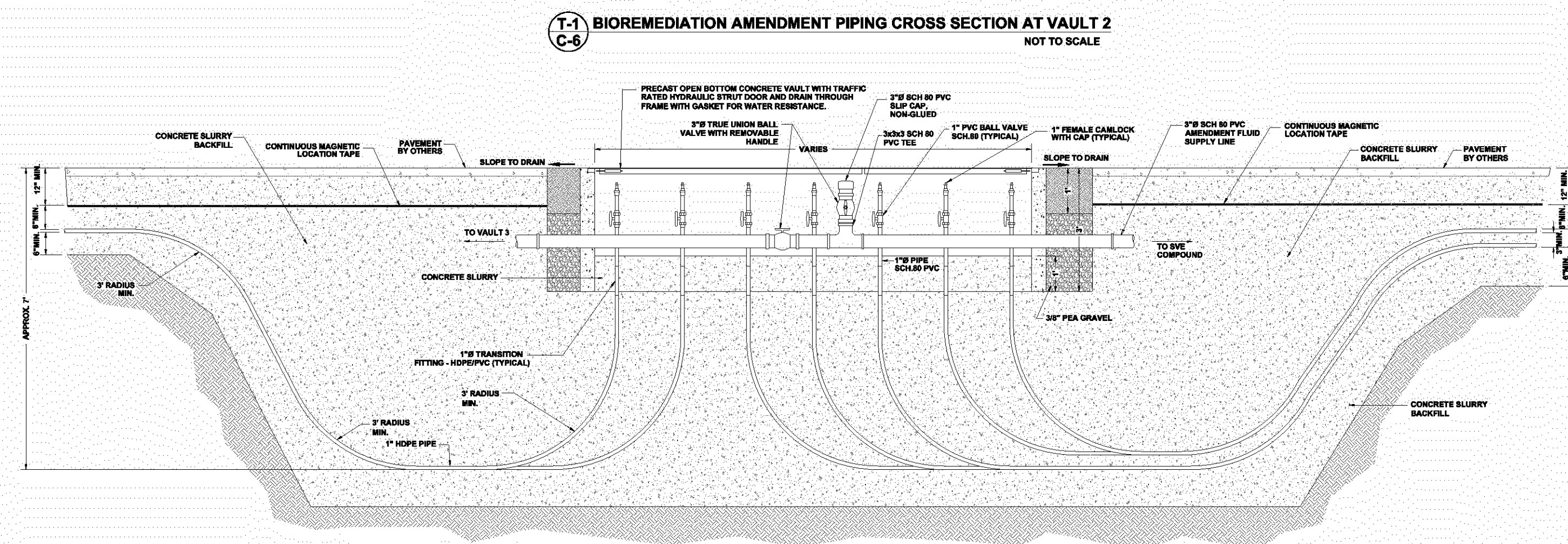
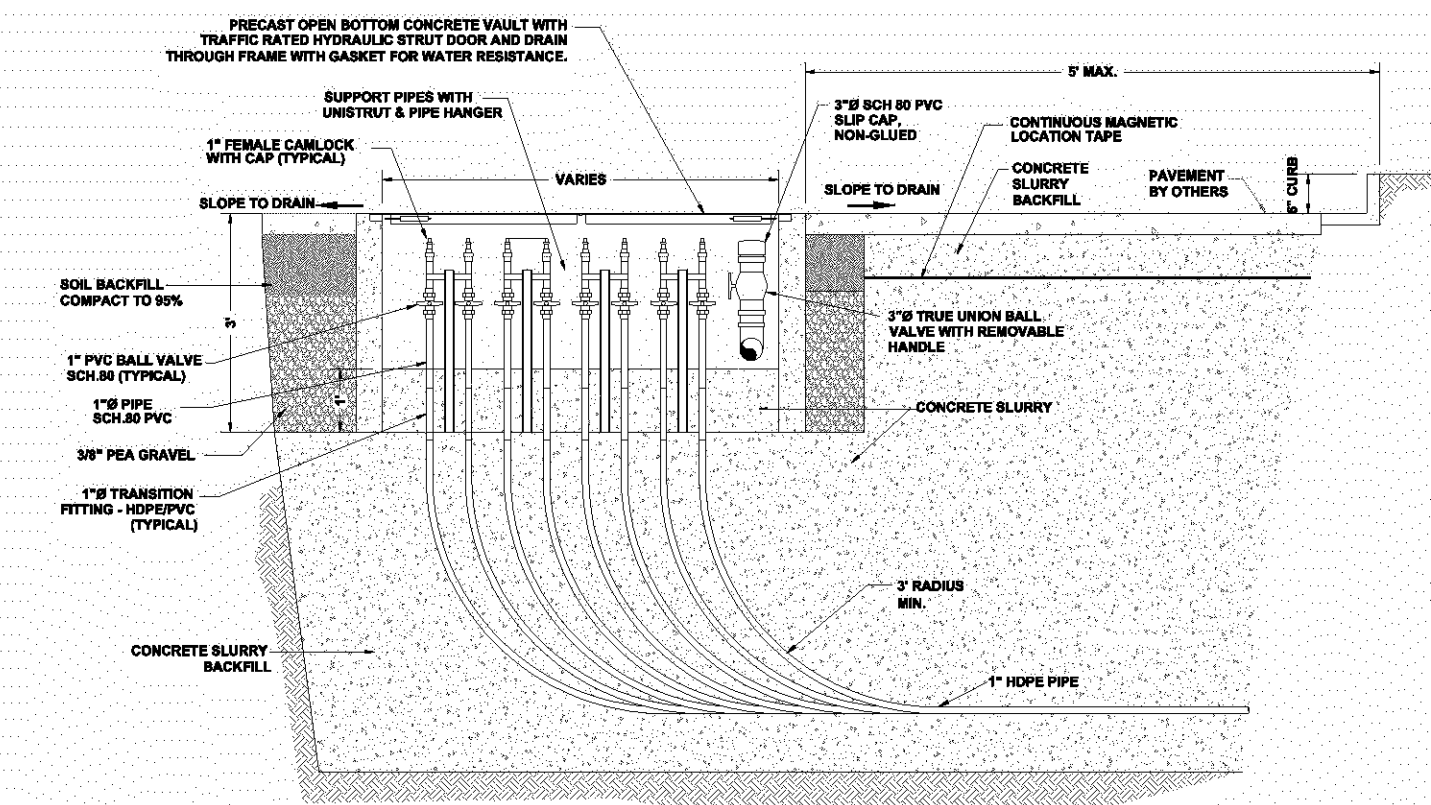
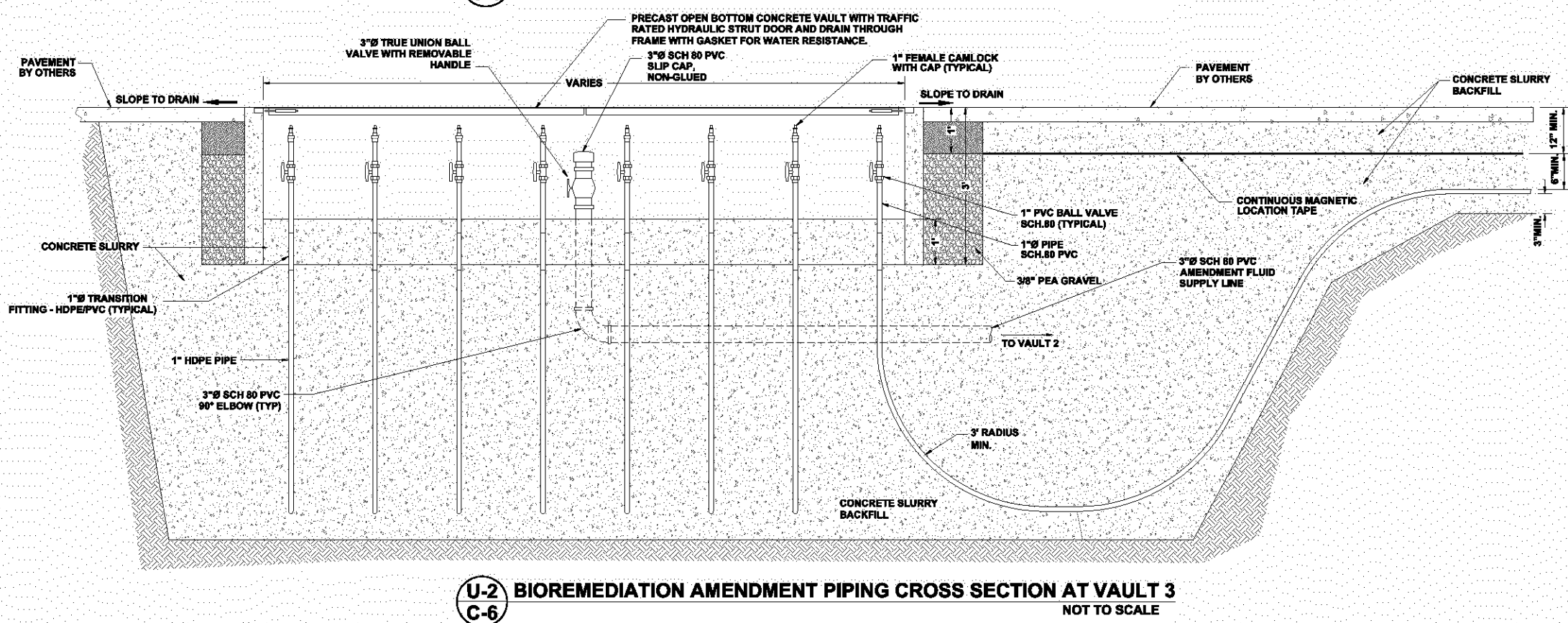
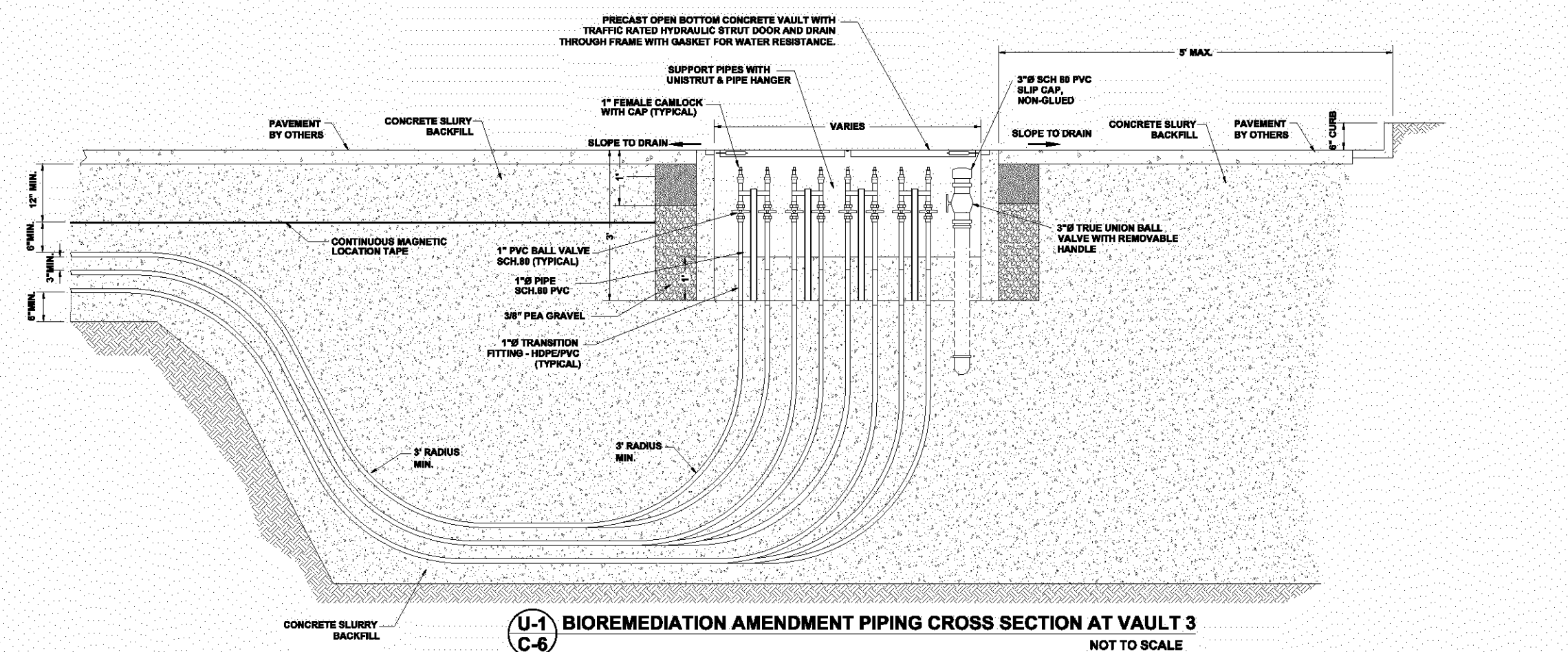
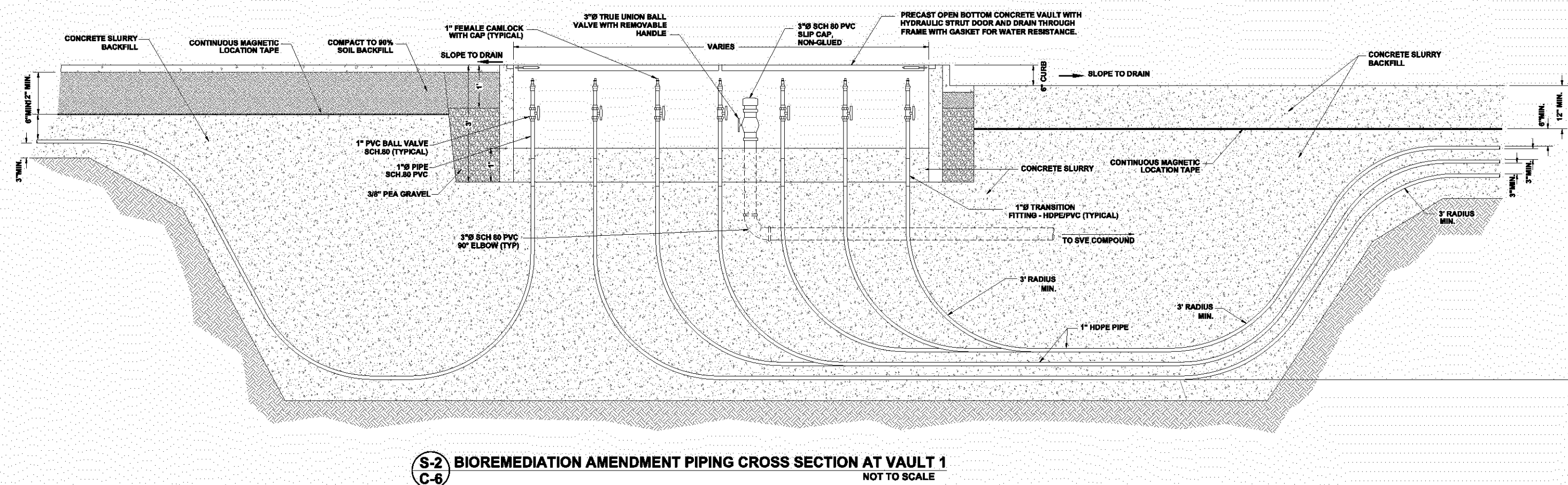
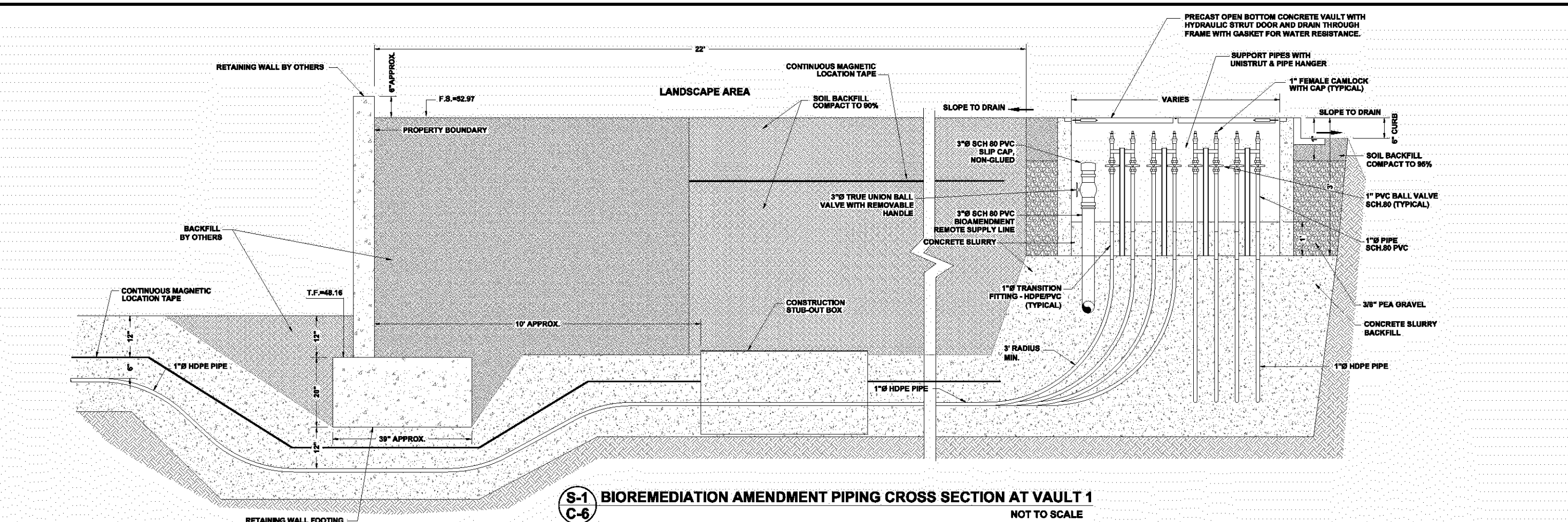
HALEY & ALDRICH
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BOEING REALTY CORPORATION FORMER C-6 FACILITY LOS ANGELES, CALIFORNIA		Project Engineer: RMF	
BIOREMEDIATION AMENDMENT AND SVE PIPING LAYOUT		Designed By: PAK	
Date: OCTOBER 2004		Scale: AS SHOWN	File No. 28882D05
0 20 40 SCALE IN FEET		Drawn By: GKM	
		Checked By: WCH	
		Sheet No.: 5 of 13	
		Drawing No. C-3	Issue 4

LEGEND

- AW0170LB LOWER B-SAND BIOAMENDMENT INJECTION WELL LOCATION
- AW0001UB UPPER B-SAND BIOAMENDMENT INJECTION WELL LOCATION
- AW0001LB UPPER/LOWER B-SAND BIOAMENDMENT INJECTION WELL LOCATION
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- PARCEL BOUNDARY
- BOUNDARY OF ADDITIONAL ENLARGED SHEET
- BIOAMENDMENT REMOTE FILL LINE
- UTILITY TRENCH FOR WATER LINE AND ELECTRICAL CONDUIT
- SUPPLEMENTAL PIPE TRENCH
- STORM DRAIN PIPE (4" Ø SCH 80 PVC)
- SANITARY SEWER PIPE (4" Ø SCH 40 PVC)
- SPARE REMEDIATION PIPE (4" Ø HDPE)
- BIOAMENDMENT FLUID SUPPLY PIPE (4" Ø HDPE)
- EXTRACTION WELL PIPING (HDPE WITH SECONDARY CONTAINMENT)
- ELECTRICAL CONDUIT(4" Ø SCH 80 PVC)
- ELECTRICAL CONDUIT(1" Ø SCH 80 PVC, NUMBER VARIES)
- VAULT 1 LOCATION OF NEW FLUSH MOUNTED VAULT FOR SUBSURFACE REMEDIATION PIPING
- LOCATION OF NEW FLUSH MOUNTED VAULT FOR ELECTRICAL CONDUIT AND SUPPLEMENTARY REMEDIATION PIPING
- CONSTRUCTION STUB-OUT BOX (BIOAMANDMENT)
- CONSTRUCTION STUB-OUT BOX (SOIL VAPOR EXTRACTION)
- CONSTRUCTION STUB-OUT BOX (SUPPLEMENTAL REMEDIATION PIPE)
- CONSTRUCTION STUB-OUT BOX (FUTURE GROUNDWATER EXTRACTION PIPE AND ELECTRICAL CONDUIT)
- FIRE LINE
- STORMDRAIN
- SWALE
- CATCH BASIN





ALL DIMENSIONS AND LOCATIONS APPROXIMATE

3	12/22/04	100% FINAL	GH
2	10/01/04	REVISED 90% DRAFT	GH
1	9/29/04	90% DRAFT	GH
0	8/16/04	50% DRAFT	GH
ISSUE	DATE	REVISIONS	B

HALEY & ALDRICH

**UNDERGROUND
ENGINEERING &
ENVIRONMENTAL
SOLUTIONS**

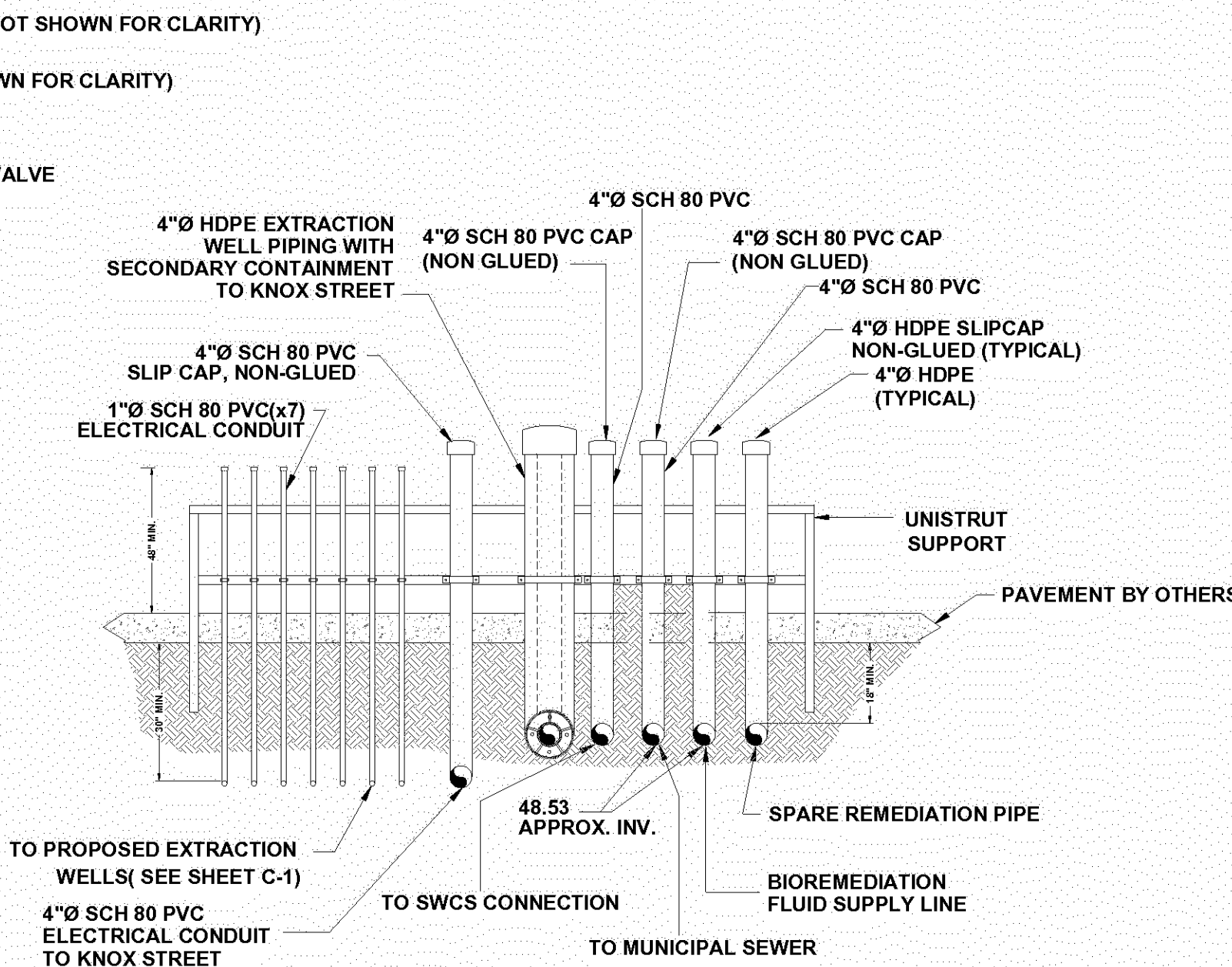
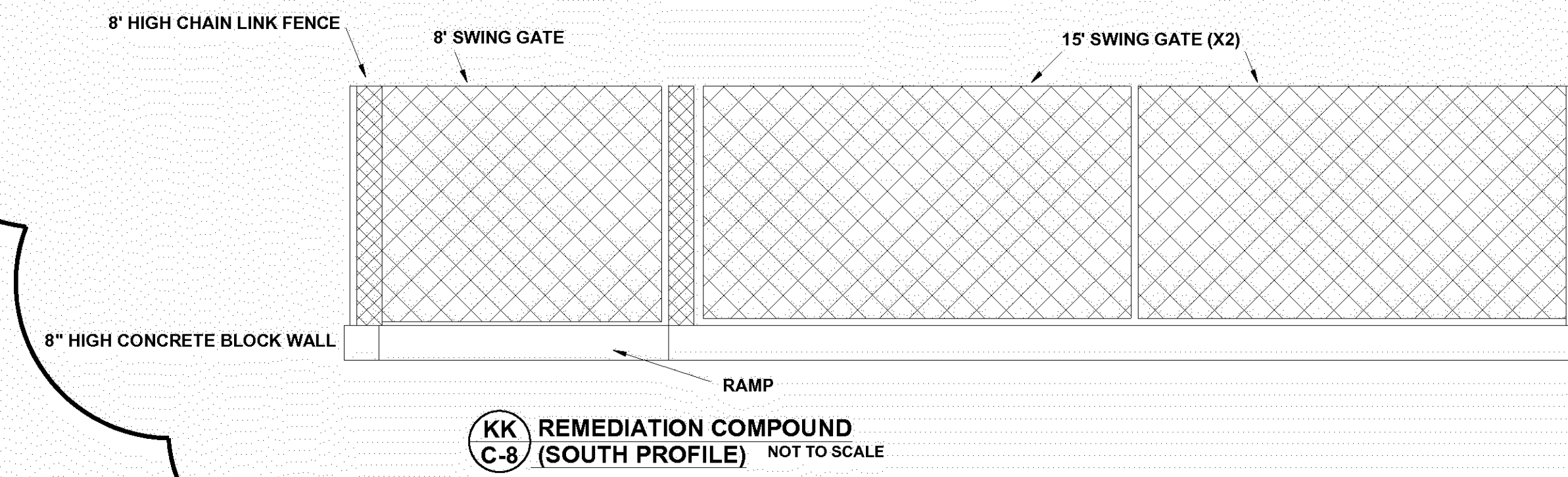
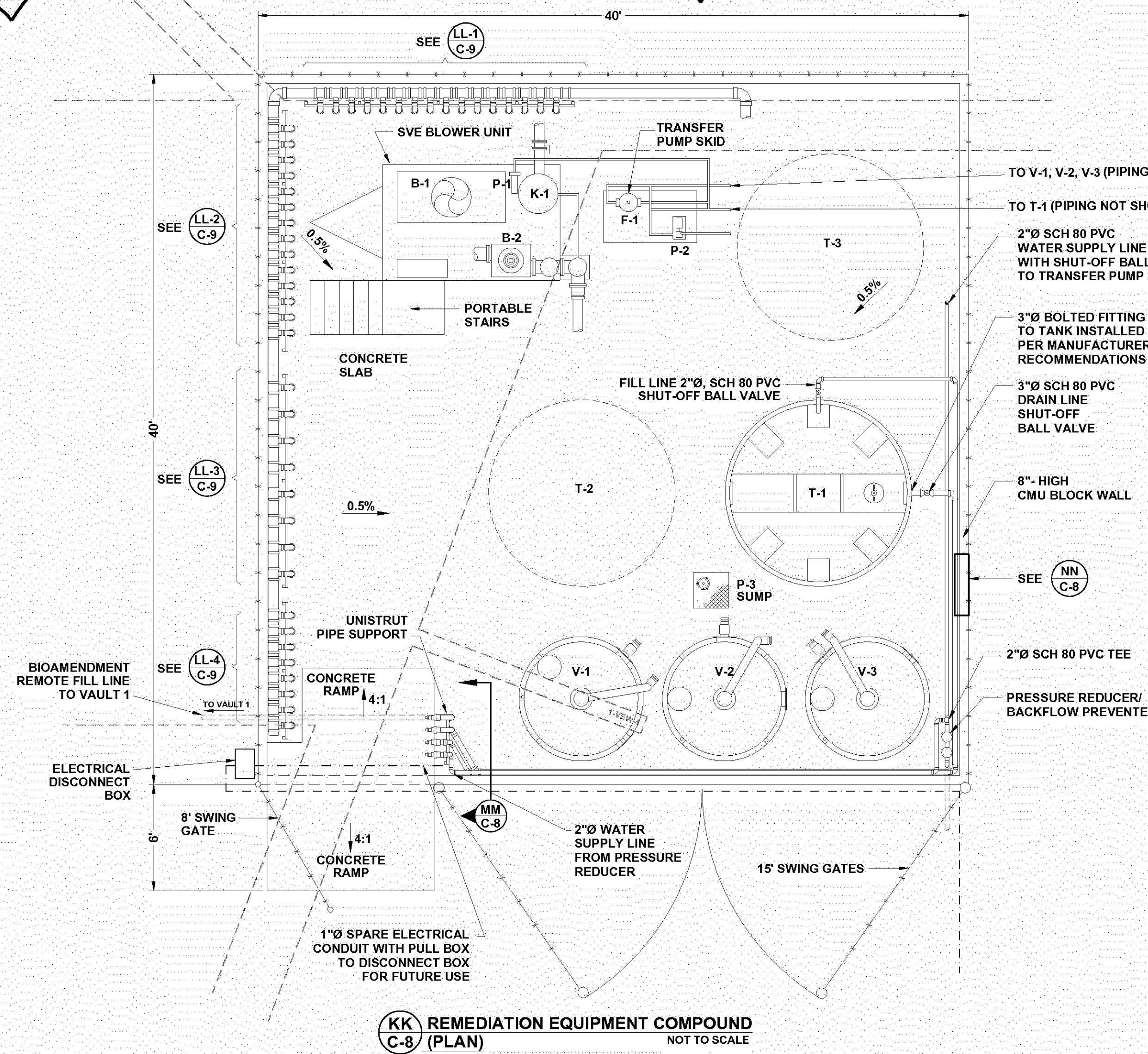
Haley & Aldrich, Inc.
9040 FRIARS ROAD, SUITE 220
SAN DIEGO, CA 92108
Tel: (619) 280-9210
Fax: (619) 280-9415

BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

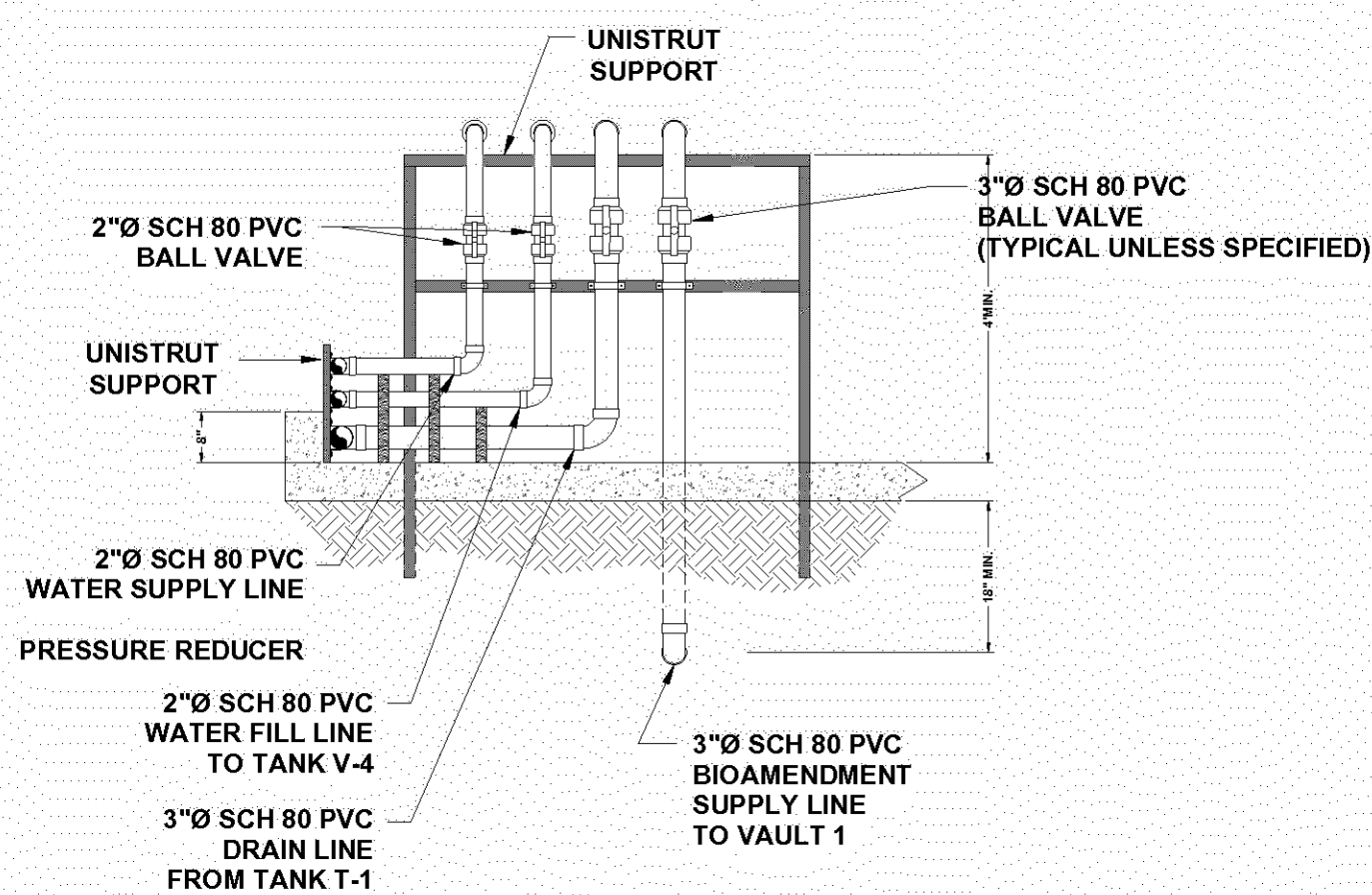
CIVIL DETAILS—BIOREMEDIATION
PIPING TRENCHES AND
VAULTS

Date:	Scale:	File No.
OCTOBER 2004	NOT TO SCALE	28882D08

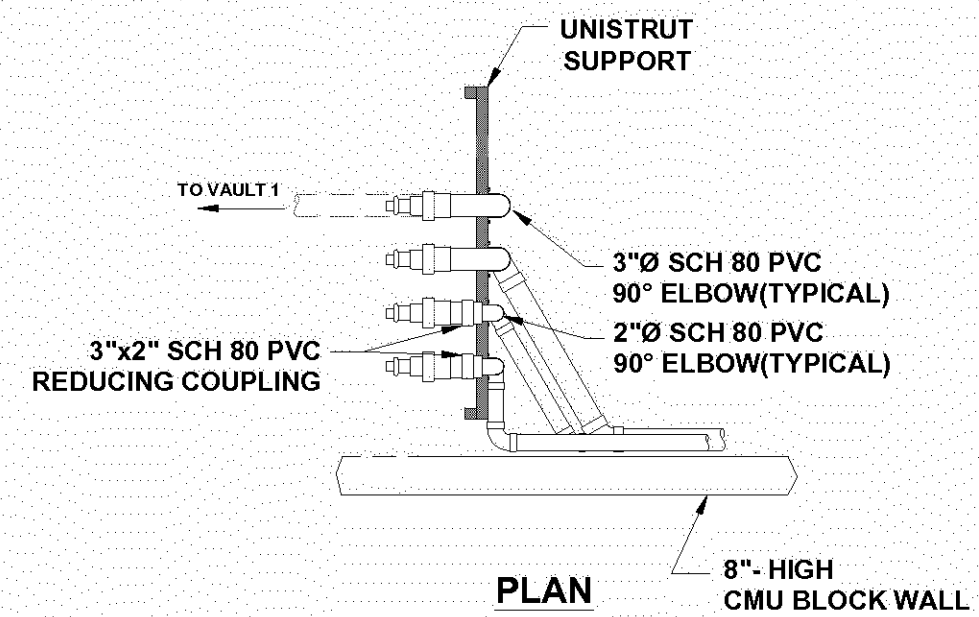
Project Engineer:	
RMF	
Designed By:	
PAK	
Drawn By:	
GKM	
Checked By:	
WCH	
Sheet No.:	
8 of 12	
Drawing No.	Issue
C-6	3



NN C-8 SUPPLEMENTARY REMEDIATION PIPE MANIFOLD NOT TO SCALE



MM C-8 WATER SUPPLY, TANK FILL & DRAIN, AND BIOAMENDMENT SUPPLY LINE MANIFOLD NOT TO SCALE



LEGEND

- 0.5% INDICATES DIRECTION AND SLOPE TO SUMP
- APPROXIMATE BOUNDARY OF SVE PIPING TRENCH
- ELECTRICAL CONDUIT FOR FUTURE CONDUCTOR
- ELECTRICAL CONDUIT LINE

- NOTES:
- GREY INDICATES SUBSURFACE FEATURES
 - ALL ABOVE GROUND PIPING WITHIN THE SVE COMPOUND SHALL BE SUPPORTED WITH UNISTRUT, OR EQUIVALENT SUPPORT.
 - MINIMUM HEIGHT OF SECONDARY CONTAINMENT IS 8" ABOVE PAD FINISH GRADE.
 - SOIL VAPOR EXTRACTION BLOWER, CARBON VESSELS, PUMPS, AND ASSOCIATED PIPING WILL BE INSTALLED BY OTHERS. ELECTRICAL CONNECTION FROM DISCONNECT BOX TO BLOWER WILL BE INSTALLED BY OTHERS.
 - MANIFOLDS SHOWN IN DETAILS MM AND NN SHALL BE CONSTRUCTED WITHIN THE SECONDARY CONTAINMENT OF THE REMEDIATION COMPOUND.

ALL DIMENSIONS AND LOCATIONS APPROXIMATE

ISSUE	DATE	REVISIONS	BY
5	7/19/05	UPDATED FINAL WITH ADDITIONAL SUPPLEMENTAL REMEDIATION PIPING	LLD
4	6/23/05	DRAFT UPDATED FINAL	GKM
3	12/22/04	100% FINAL	GKM
2	10/01/04	REVISED 90% DRAFT	GKM
1	9/29/04	90% DRAFT	GKM
0	8/16/04	50% DRAFT	GKM

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UNDERGROUND ENGINEERING & ENVIRONMENTAL SOLUTIONS

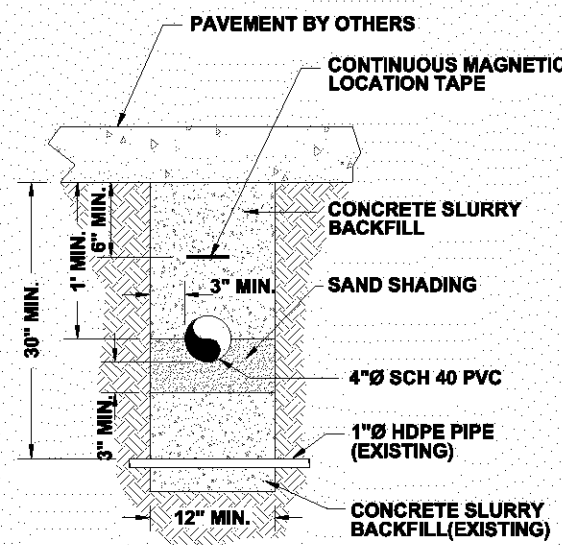
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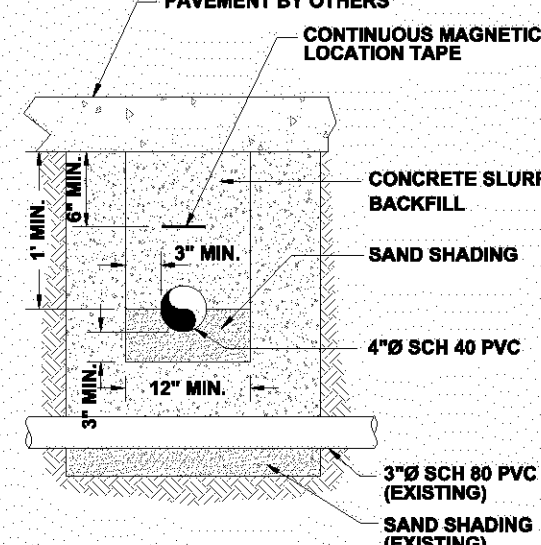
CIVIL DETAILS - REMEDIATION EQUIPMENT COMPOUND

Date: OCTOBER 2004 Scale: NOT TO SCALE File No: 28882D11

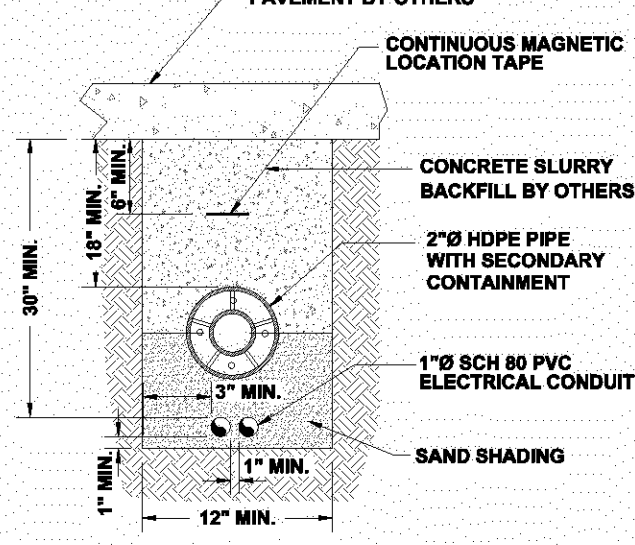
Project Engineer:	RMF
Designed By:	PAK
Drawn By:	GKM
Checked By:	WCH
Sheet No.:	10 of 13
Drawing No.:	C-8
Issue:	4



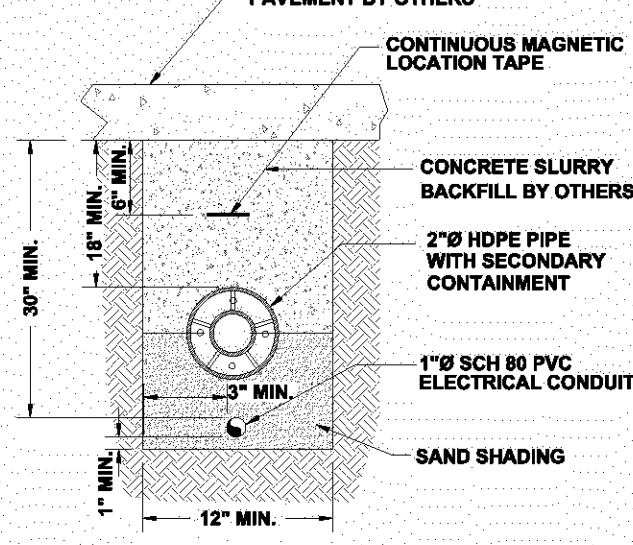
OO MUNICIPAL SANITARY SEWER LATERAL
C-10 AT BIOREMEDIATION PIPING (TYPICAL)
NOT TO SCALE



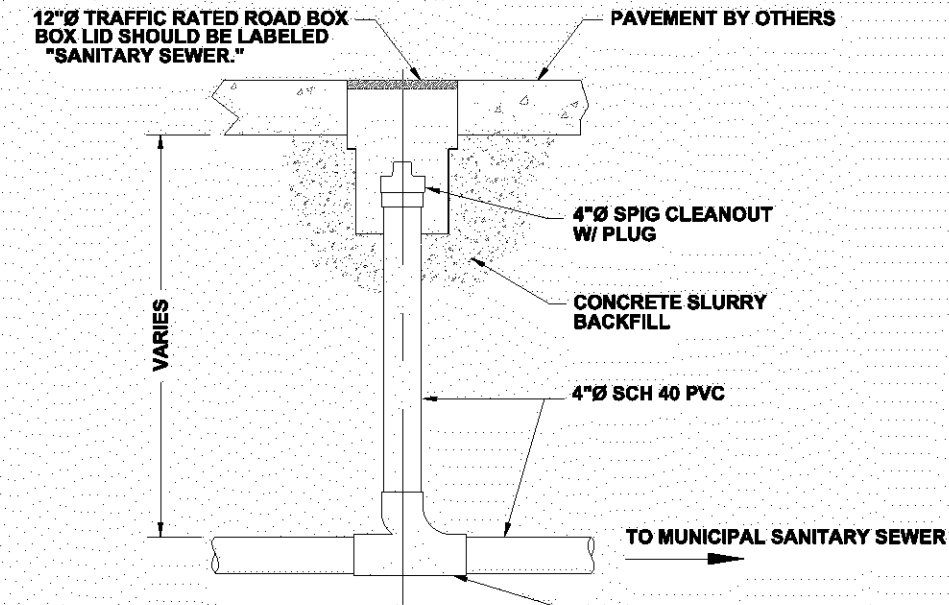
PP MUNICIPAL SANITARY SEWER LATERAL
C-10 AT SVE PIPING (TYPICAL)
NOT TO SCALE



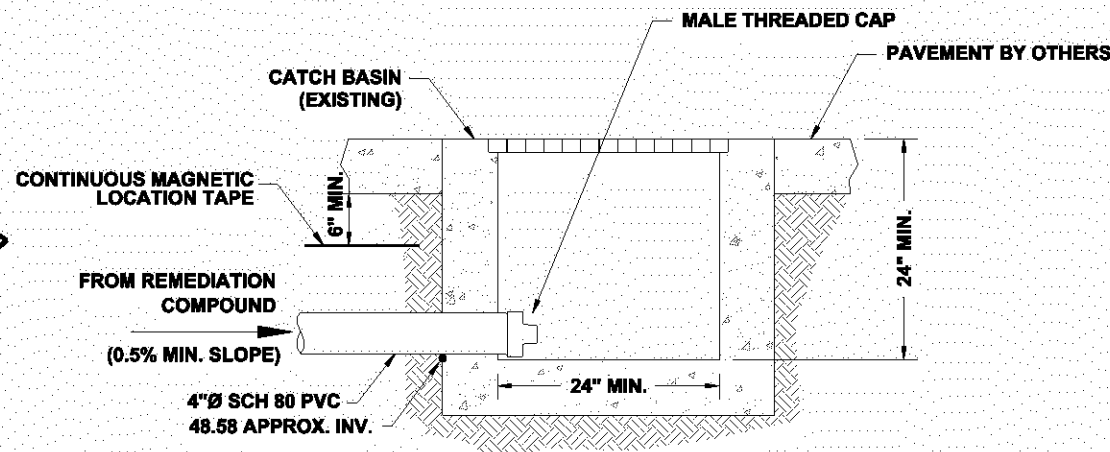
QQ EXTRACTION WELL PIPING AND
C-10 ELECTRICAL CONDUIT
NOT TO SCALE



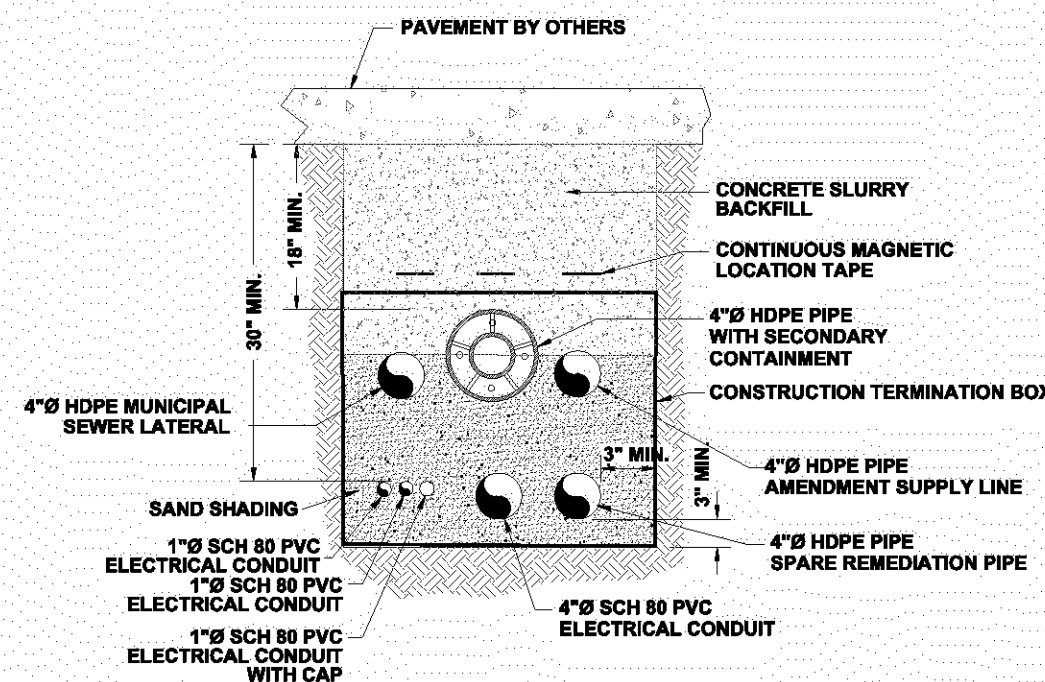
RR EXTRACTION WELL PIPING AND
C-10 ELECTRICAL CONDUIT
NOT TO SCALE



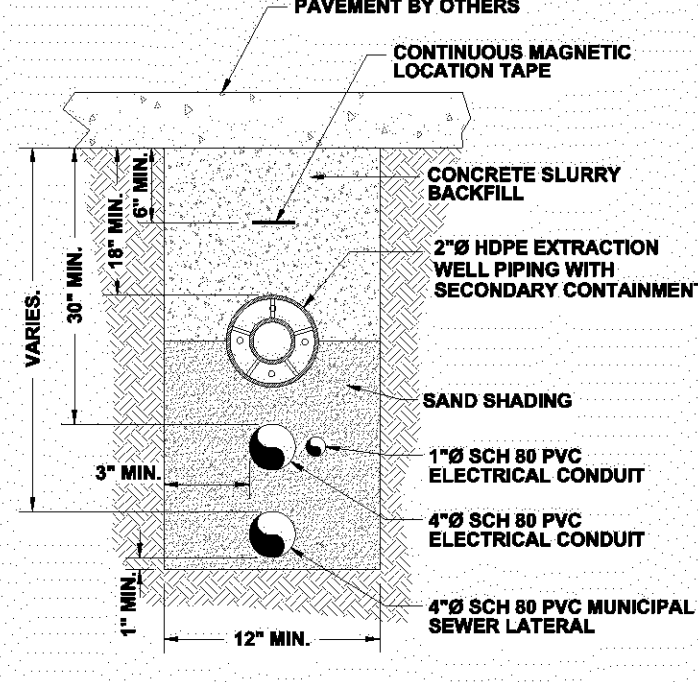
SS MUNICIPAL SANITARY SEWER
C-10 LATERAL CLEANOUT (TYPICAL)
NOT TO SCALE



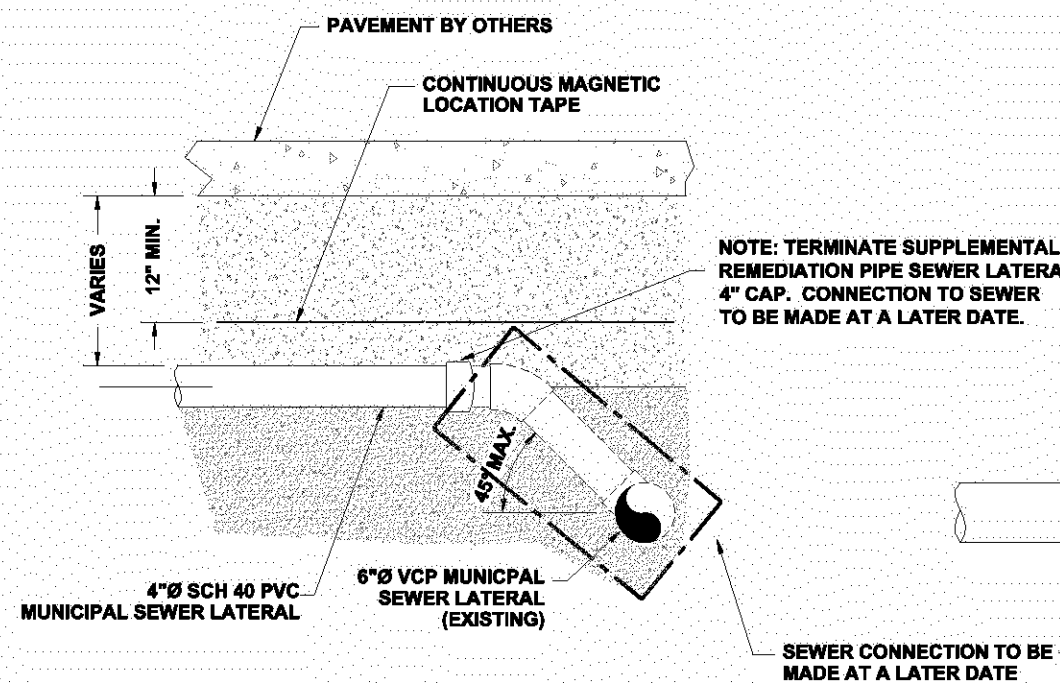
TT STORM WATER LATERAL AT
C-10 CATCH BASIN
NOT TO SCALE



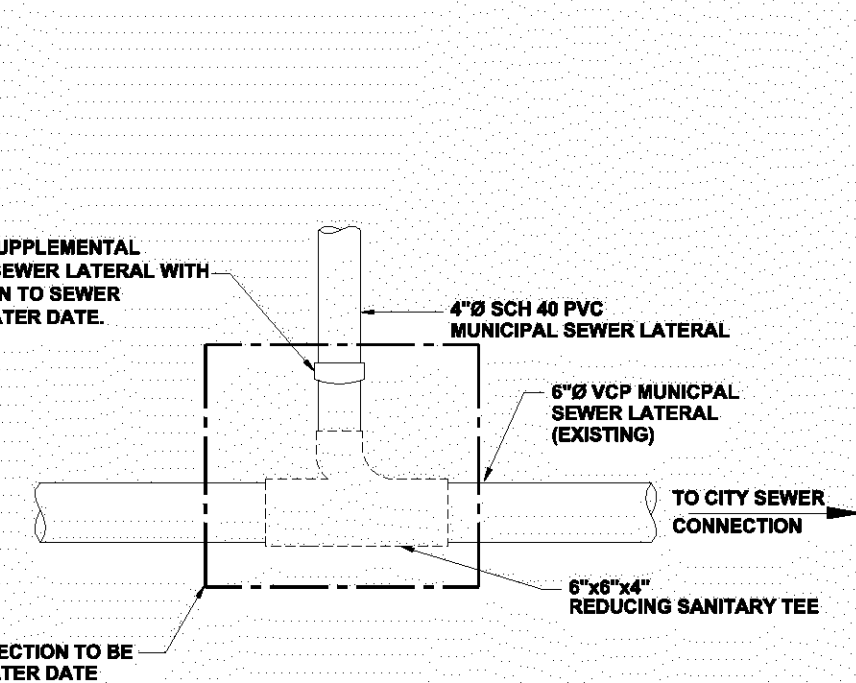
UU SUPPLEMENTARY REMEDIATION PIPE
C-10 NOT TO SCALE



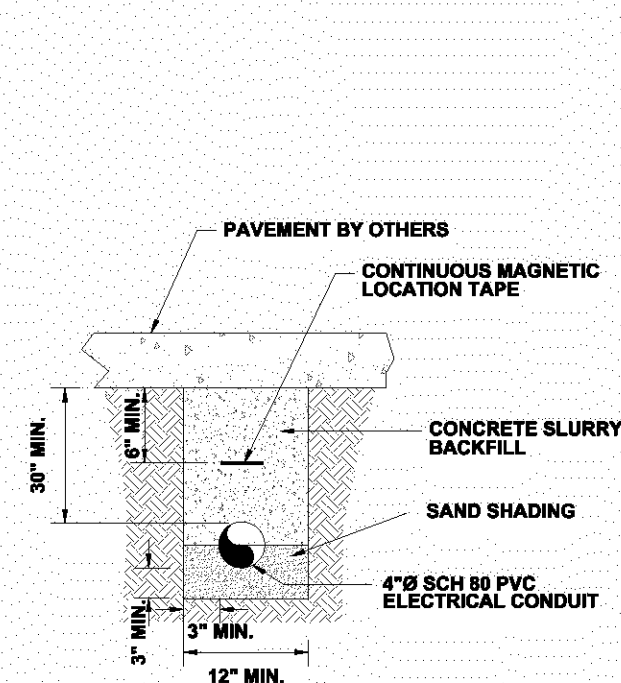
VV SUPPLEMENTAL REMEDIATION
C-10 PIPE TRENCH
NOT TO SCALE



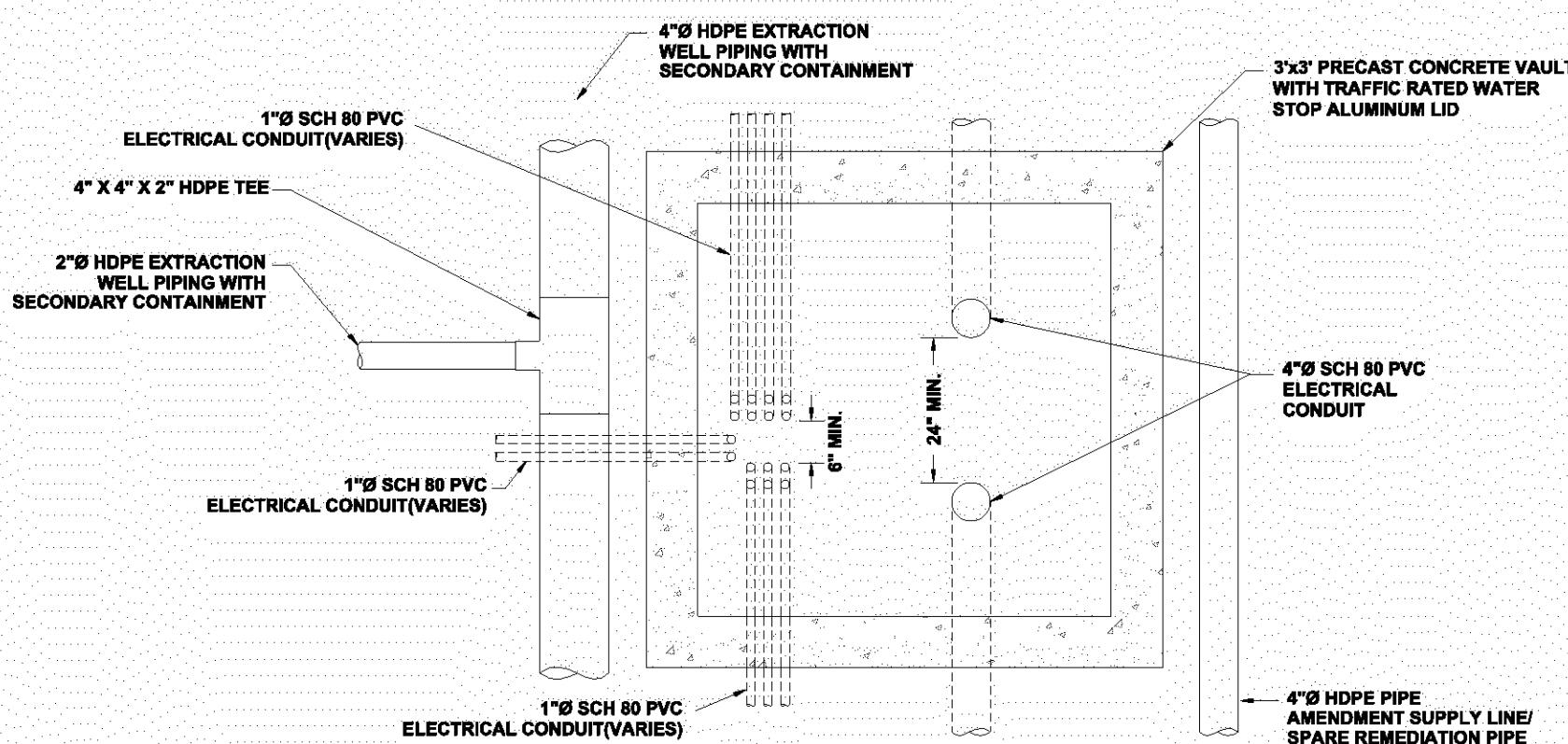
WW-1 MUNICIPAL SEWER
C-10 LATERAL CONNECTION (PROFILE)
NOT TO SCALE



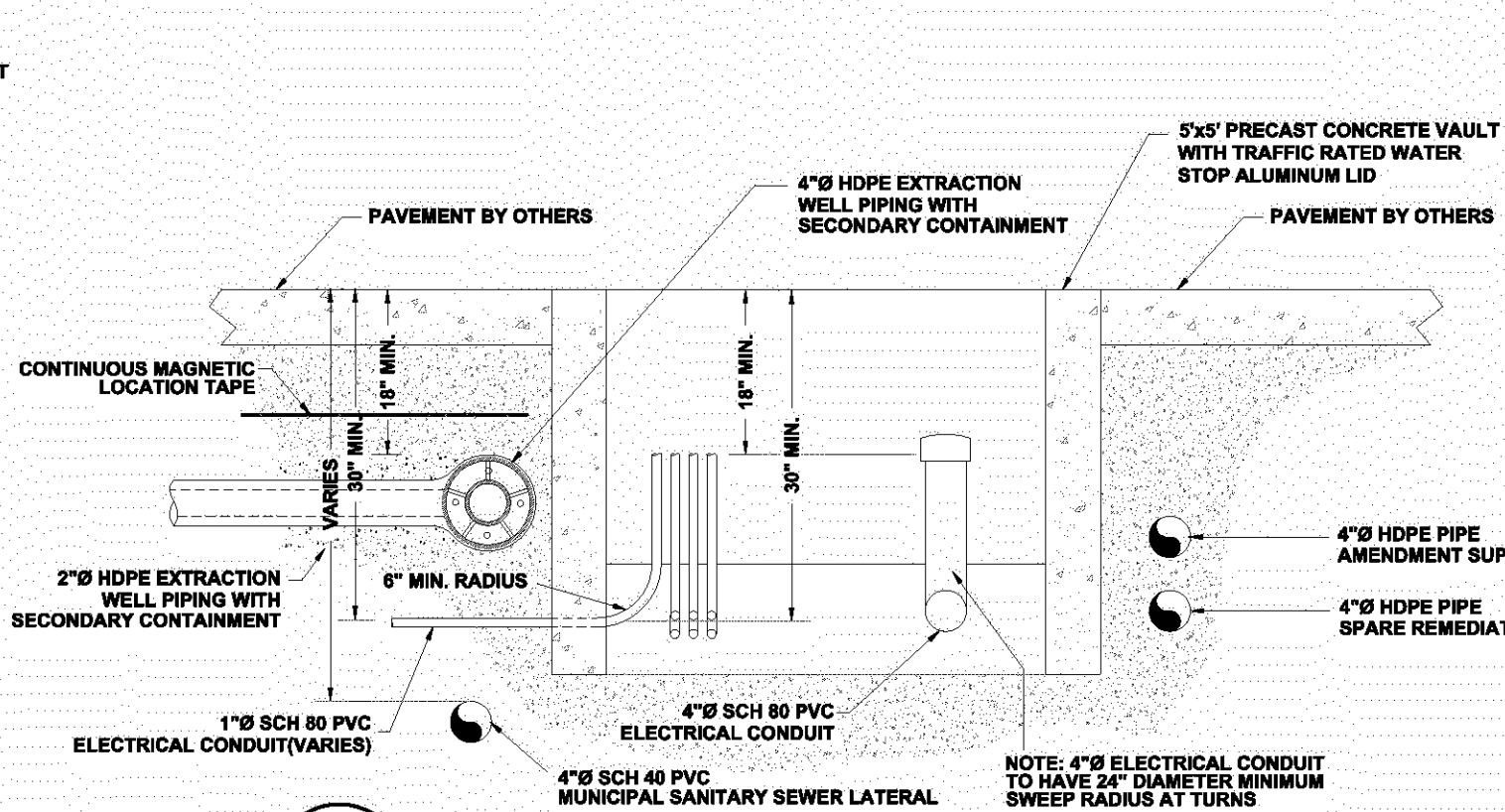
WW-2 MUNICIPAL SEWER
C-10 LATERAL CONNECTION (PLAN)
NOT TO SCALE



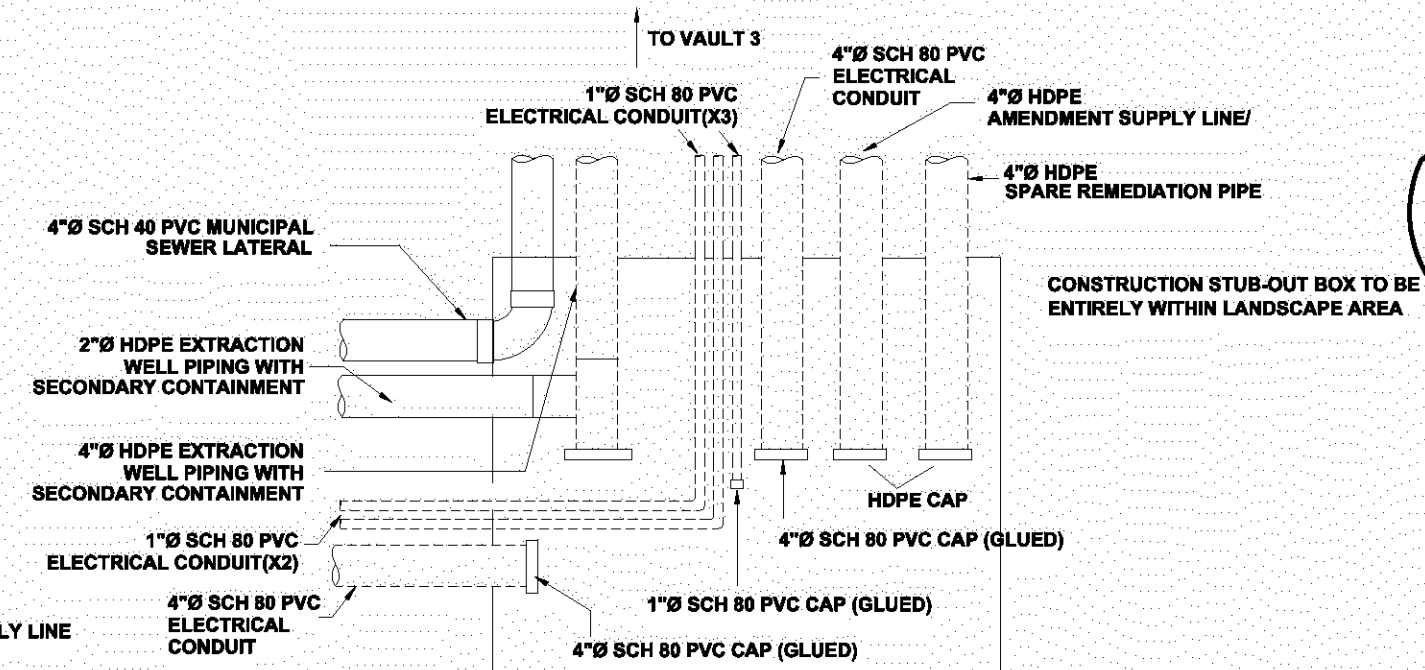
XX ELECTRICAL CONDUIT
C-10 (TYPICAL)



ZZ-1 ELECTRICAL CONDUIT VAULT (PLAN)
C-10 (TYPICAL)
NOT TO SCALE



ZZ-2 ELECTRICAL CONDUIT VAULT (PROFILE)
C-10 (TYPICAL)
NOT TO SCALE



AAA CONSTRUCTION STUB-OUT BOX AT KNOX STREET
C-10 (SCHEMATIC)

HALEY & ALDRICH

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CIVIL DETAILS—SUPPLEMENTARY
PIPING, TRENCHES, AND
VAULTS

Date:
OCTOBER 2004

Scale:
NOT TO SCALE

File No.:
28882D12

Project Engineer:

RMF

Designed By:

PAK

Drawn By:

GKM

Checked By:

WCH

Sheet No.:

12 of 13

Drawing No.:

Issue

C-10 4